Family Echidnidae

Body compressed or cylindrical. Head conic, mouth terminal, with lateral cleft reaching beyond eye. Maxillary articulates with ethmo-vomer some distance from snout end. Teeth strong, acute or obtuse, in 1 or more rows. Nostrils lateral. Gill openings well separated. Pharyngeal apertures of gill clefts restricted. Upper and lower pharyngeals with strong curved teeth in double row, elongated, supported by enlarged epibranchials and ceratobranchials of fourth arch. Frontal bone paired. Palato-pterygoid very

slender, nearly vestigial. Neural spines developed in caudal region only, short, laminar. Caudal vertebral with lateral transverse extensions. Skin naked, thick, usually tough. Vertical fins various. No pectorals.

A large family of tropical or subtropical eels, living chiefly among rocks and coral reefs. Many are large and powerful, capable of inflicting dangerous wounds with their formidable teeth. Many are also strikingly colored.

2425

The following specimen unidentifiable:

One example. Ban Ban, Formosa. June 27, 1910. Length 39 mm.

Analysis of genera

a.' Echidninae. Vertical fins well developed, dorsal beginning before vent.

b.' Teeth all or nearly all acute, none molars.

c.' Tail 1 1/2 to 2 times long as combined head and trunk.

d.' Front nostril in simple tube; snout and lower jaw tips without barbel like appendages. Evenchelys.

d.² Tubes of front nostril with leaf like appendages; snout and lower jaw tips with barbel like appendages. Rhinamuraena.

c.² Tail equals or little longer or shorter than rest of body.

e.' Trunk very slender, elongate, depth 4.0 to 5.5; head 1.2 to 1.7.

Pseudechidna.

e.[2] Depth less than 30; head less than 12.

f.' Hind nostril without tube or with tube much shorter than simple tubes of anterior nostrils.

g.' Depressible canines few (1 to 10). Lycodontis.

g.[2] Depressible canines very many (30); teeth biserial; mouth large, not completely closing. Ædmodia.

f.[2] Front nostrils with thickened rim forming bilobed posterior flap; hind nostril oval opening, nearly equals eye and surrounded by thin membrane. Enchelynassa.

f.[3] Both front and hind nostrils equally tubular. Muraenophis.

b.[2] Teeth mostly obtuse, molar like; only front nostril tubular; mouth cleft rather short; dorsal begins before gill opening. Echidna.

a.[2] Uropterygiinae. Vertical fins rudimentary or absent, when present terminal on tail; teeth rather small, pointed, subequal, in several rows; hind nostril round, with or without short tube.

g.[3] Tail about long as rest of body; snout moderate, half mouth cleft, which not half of head. Uropterygius.

g.[2] Tail very short, half rest of body; snout very short, less than 1/4 mouth cleft, which nearly half of head. Chaenomuraena.

2429

Genus Evenchelys Jordan and Evermann

Evenchelys Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, 1902, p. 327.

Type Muraena macrura Bleeker, orthotypic.

Rhabdura Ogilby, Proc. Royal Soc. Queensland, Vol. 20, 1907 (1908), p. 12. Type Muraena macrura Bleeker, virtually monotypic.

Body greatly elongate, very slender, slightly compressed, tail 1½ to twice length of rest of body. Head rather long. Snout short. Eye small, far advanced: mouth rather large, extends far behind eye, closed completely. Teeth acute, compressed, biserial in maxillaries, uniserial in mandible with 2 series near symphysis. Vomerine teeth small,

uniserial. Premaxillaries ~~toothless~~ with peripheral series, and mesial row of 4 depressible teeth. Front nostrils tubular, on top of snout. Hind nostrils on top of head above front eye edge, margin furnished with fim. Gill opening small, oblique, low or ventral. dorsal and anal confluent around tail, covered with thick skin, dorsal beginning far below gill openings.

Indo Pacific. A single species of large size, likely the longest living apodal fish.

Evenchelys macrurus (Bleeker)

Muraena macrurus Bleeker, Natuurk. Tijds. Nederl. Indië, vol. 7, 1854, p. (314) 324. Anjer, Sunda Straits. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 127 (Port Natal, Ceylon, Indian Ocean, Java). — Perugia, Ann. Mus. Civ. Stor. Nat. Genova, vol. 33, 1893, p. 255 (). — Regan, Ann. Natal Gov. Mus., 1908, p. 243 (Kosi Bay). — Weber, Nova Guinea, vol. 5, pt. 2, 1908, p. 227 (Merauke River mouth, southern New Guinea). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 42 (Pelew Islands).

Muraena macrura Day, Fishes of India, pt. 4, 1878, p. 672, pl. 170, fig. 5; Fauna British India, Fishes, vol. 1, 1889, p. 81, fig. 32.

Muroena macrurus Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 594 (Luzon, Manila, Navotas).

Thyrsoidea macrurus Bleeker, Atlas Ichth. Ind. Neerlandais, vol. 4, 1864, p. 111, pl. (22) 166, fig. 2 (Java). — Kner, Reise Novara, Fische, 1865, p. 386 (Java). — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 355, fig. 174 (Flores; Merauke River mouth).

Evenchelys macrurus Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, 1902, p. 327 (Kotosko, Formosa). — Fowler, Journ. Acad. Nat. Sci. Philadelphia, Ser. 2, vol. 12, 1904, p. (Padang); Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 20 (Padang specimen); Copeia, no. 58, June 18, 1918, p. 62 (Philippines). — Herre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 302 (Manila Bay, Lingayen Gulf, Iloilo, Agusan River, Davao Bay, Borneo). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 196 (Natal coast); Mem. Bishop Mus., vol. 10, 1928, p. 51 (compiled).

Rhabdura macrura Weber, Siboga Expéd., vol. 57, Fische, 1913, p. 56.

Gymnothorax macrurus Gilchrist and Thompson, Linn. Durban Mus., vol. 1, pt. 4, 1917, p. 304 (compiled).

Thyrsoidea longissima Kaup, Archiv Naturges., vol. 22, pt. 1, 1856, p. 61. Bombay; Cat. Apodal Fish Brit. Mus., 1856, p. 82 (types).

2434

Genus Rhinomuraena Garman

Rhinomuraena Garman, Bull. Essex Inst., 1888, p. 114. Type Rhinomuraena quaesita Garman, monotypic.

Nettastomops Steindachner, Anzeiger Akad. Wiss. Wien, Nr. 17, 1906, p. 299. Type Nettastomops barbatula Steindachner, monotypic.

Body very slender, elongate, somewhat compressed. Head compressed. Snout pointed, with barbel like filamentous appendage - and 3 similar ones on symphysis of lower jaw. Eye small, covered by skin. Mouth cleft reaches

far behind eye, jaws close completely.
Teeth uniserial, conic, pointed,
maxillary series continued on premaxillary
which carries besides mesially 3
depressible and somewhat longer
teeth. Front nostril extended in
tube ending with leaf like appendage,
margin of which split. Hind nostril
rounded opening close before eye
level with upper eye edge. Gill
openings larger than eye, in lower
half of body height, forming into
slight tube. Vertical fins confluent,

Ophichthus melanotaenia Klunzinger

Ophichthys melanotaenia Klunzinger,

Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871,

p. 612. Red Sea.

well developed, covered by skin only. Dorsal origin on top of head, far before gill openings.

Eels of moderate size, remarkable for the pointed appendages at tip of the muzzle and the leaf like appendage of the front nostril. Apparently a single species.

Ophisurus vermiformis Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, pp. 184, 212, pl. 12, fig. 2. Bengal.

Ophisurus minimus Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, pp. 185, 212, pl. 10, fig. 3. Bengal.

Ophisurus caudatus Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, pp. 185, 204, pl. 12, fig. 3. Bengal.

Ophichthys boro (not Buchanan-Hamilton) Day, Fishes of India, pt. 4, 1878, p. 664 (part).

Rhinomuraena quaesita Garman

Rhinomuraena quaesita Garman, Bull. Essex Inst., 1888, p. 114. - Ebon Island, Marshall Groups. ✓ - Günther. Journ. - Barbour, Proc. Biol. Soc. Washington, vol. 21, Feb. 29, 1908, p. 39 (type). Mus., vol. 10, 1928, p. 30 (type); vol. 11, no. 5, 1931, p. 317 (reference).

Hettastomops barbatula Steindachner, Anzeiger Akad. Wiss. Wien, Nr. 17, 1906, p. 121. Ergolw; Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1421 (type).

? Ophichthys macrops Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 402, pl. 166, fig. B 2 S. Kingsmill Islands.

Rhinechidna eritonica Jordan, Journ. Pan Pac. Res. Inst., vol. 2, no. 4, dec.-Dec. 1927, p. 4 (Nanaroad: lapsus).

2437

Rhinomuraena quaesita Garman

Rhinomuraena quaesita Garman, Bull. Essex Inst., 1888, p. 114. - Ebon Island, Marshall Group. ✓ — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 427 (compiled). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 50 (type); vol. 11, no. 5, 1931, p. 317 (reference).

Hettastomops barbatula Steindachner, Anzeiger Akad. Wiss. Wien, Nr. 17, 1906, p. 121. Ergolw; Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1421 (type).

? Ophichthys macrops Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 402, pl. 166, fig. 2. S. Kingsmill Islands.

Rhinechidna eritonica Jordan, Journ. Pan Pac. Res. Inst., vol. 2, no. 4, Oct.-Dec. 1927, p. 4 (Rhinocaulis lapsus).

2438

Rhinomuraena amboinensis Barbour

Rhinomuraena amboinensis Barbour, Proc. Biol. Soc. Washington, vol. 21, 1908, p. 40. Amboina. — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 353, figs. 172-173 (Banda).

Feb. 29

2439

Genus Pseudechidna Bleeker

Pseudechidna Bleeker, Nederl. Tijds. Dierk., vol. 1, 1863, p. 272. Type Muraena brummeri Bleeker, monotypic.

Strophidon Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1844, pp. 203, 214. Type Lycodontis longicaudata Mc Clelland, virtually restricted by Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 880.

Body exceedingly long, slender, scarcely compressed, depth 40 to 55. Head moderate, pointed, length 12 to 17. Snout acutely rounded. Eye small, median in mouth cleft. Teeth entire, conic, compressed, partly depressible.

2440

Posterior nostril without tube.
Gill opening median in body depth.
Dorsal begins well before gill
opening. very numerous rays 628,
anal rays 335.

One species, remarkably for
its very long slender body.

Hostels without tubes.

2441

Pseudechidna brummeri (Bleeker).

Muraena brummeri Bleeker, Naturk.

Tijds. Nederl. Indië, vol. 27, 1858–59, p. 137. Atapupu, Timor. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 128 (type). — Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (Raiatea). — Pohl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (Raiatea). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1918, p. 420 (type of Muraena taenioides, Samoa, Upolu).

Muraena brummeri De Vis, Proc. Linn. Soc. New South Wales, vol. 8, 1883, p. 457 (Api, New Hebrides).

Muraena (Strophidon) brummeri Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 357, fig. 179 (Nias, Bawean, Savu, Ambon).

Pseudechidna brummeri Bleeker, Atlas Ichth. Ind. Néerland, vol. 4, 1864, pl. (18), fig. 1. — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 204 (Puerto Galera and Mindanao).

Strophidon brummeri Bleeker, Atlas Ichth. Ind. Néerland, vol. 4, 1864, p. 109 (Timor; Ceram). — Schmeltz, Cat. Mus. Godeffroy, No. 6, 1877, p. 78 (Raiatea). — Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1423 (Upolu). — Franz, Abhandl. Kon. Bayer. Akad. Wiss., vol. 4, Suppl. Band 1, 1910, p. 16 (Sagami Bay). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, 1922, p. 9 (Cebu). — Deraniyagala, Ceylon Administ. Rep., 1925, p. F 15 f. — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 50 (compiled); vol. 11, No. 5, 1931, p. 317 (reference).

2443

Strophidon polyodon Bleeker, Nederland Tijds. Dierk., vol. 2, 1864 (1865), p. 47, Amboyna; Atlas Ichth. Ind. Néerland, vol. 4, 1864, p. 109 (type); Arch. Néerland Sci. Nat. Harlem, vol. 13, 1878, p. 38 (New Guinea).

Muraena polyodon Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 128 (type).

Muraena taenioides Günther, Proc. Zool. Soc. London, 1871, p. 674, Savay.

Gymnothorax megapterus Weber, Siboga Fishes, vol. 57, Fische, 1913, p. 57, Pl. 7, fig. 1. Seba, Savu Island, East Indies.

depth 39 1/2 to 40 1/4; head 10 1/3 to 12 1/5, 4 to 4 1/2 to vent, width 5 to 5 1/5 in its length; combined head and trunk 1 4/7 to 1 2/3 in tail. Snout 9 1/5 to 11 in head; eye 16 1/2 to 17 1/2, 1 7/8 to 2 1/8 in snout, 1 1/4 to 1 2/3 in interorbital; mouth cleft extends 2 to 3 4/5 eye diameters behind eye, length 2 7/8 to 3 1/4 in head; teeth, conic, compressed, uniserial, variably biserial on both sides; row of 3 or 4 large fangs down middle of premaxillary, in jaws

to test an irregular grow

with surrounding loup of rather large teeth; single row of small teeth down vomer; interorbital 11 1/3 to 11 2/3, convex. Gill opening equals or slightly longer than eye.

Dorsal origin at 2/5 to 3/5 in postrictal space, height about half body depth at vent; caudal pointed, long as snout.

Dark brown, little paler below. Iris gray. Fins dark.

Madagascar, Mauritius, East Indies, Philippines, Japan, Melanesia, Polynesia.

7446

14022. Aparri, Luzon. November 19, 1908. Length 595 mm.

9377. Cebu market. August 29, 1909. Length 1143 mm.

9380. Cebu market. September 1, 1909. Length 1570 mm.

6117. Iloilo market. June 1, 1908. Length 1961 mm.

4652. Manila market. January 13, 1908. Length 1635 mm.

5697, 5698. Manila market. April 22, 1908. Length 917 to 1104 mm.

6825. Kowloon market, China. October 1, 1909. Length 750 mm.

Genus Lycodontis Inc Clelland

Lycodontis Inc Clelland, Calcutta Journ. Nat. Hist., vol. 5, No. 18, 1845, pp. 173, 185. Type Lycodontis literata Inc Clelland, designated by Jordan, Genera of Fishes, pt. 2, 1919, p. 220.

Thaerodontis Inc Clelland, Calcutta Journ. Nat. Hist., vol. 5, No. 18, 1845, pp. 174, 187. Type Thaerodontis reticulata Inc Clelland, monotypic.

Sidera Kaup, Archiv Naturges., 1856, pt. 1, p. 58. Type Muraena pfeifferi Bleeker, designated by Jordan, Genera of Fishes, pt. 2, 1919, p. 276.

Eurymyctera Kaup, Archiv Naturges., 1856, pt. 1, p. 59. Type Eurymyctera crudelis Kaup, monotypic.

Thyrsoidea Kaup, Archiv Naturges., 1856, pt. 1, p. 60. Type Muraena thyrsoidea Kaup, tautotypic.

Polyuranodon Kaup, Archiv Naturges., 1856, pt. 1, p. 65. Type Polyuranodon buhlii Kaup, monotypic.

Taeniophis Kaup, Abhandl. Nat. Ver. Hamburg, vol. 4, pt. 2, 1859 (1860), p. 1. Type Taeniophis westphali Kaup, designated by Jordan, Genera of Fishes, pt. 2, 1919, p. 297.

Priodonophis Kaup, Abhandl. Nat. Ver. Hamburg, vol. 4, pt. 2, 1859 (1860), p. 22. Type Muraena ocellata Agassiz, monotypic.

Neomuraena Girard, Proc. Acad. Nat. Sci. Philadelphia, 1858 (1859), p. 171. Type Neomuraena marginata Girard, monotypic.

Pseudomuraena Johnson, Proc. Zool. Soc. London, 1860, p. 467. Type Pseudomuraena madeirensis Johnson, monotypic.

Rabula Jordan and Davis, Rep. U.S. Fish. Comm., pt. 16, 1888 (1892), p. 589. Type Muraena aquaedulcis Cope, orthotype.

Rhinechidna Barbour, Proc. Biol. Soc. Washington, vol. 21, 1910, p. 41. Type Rhinechidna eritima Jordan and Seale, monotypic.

Ahynnodontophis Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 25. Type Gymnothorax stigmanotus Fowler, orthotypic.

2450

Body long, often thick and robust, depth less than 30. Tail moderate, not twice length of head and trunk. Head compressed. Eyes small. Mouth cleft reaches beyond eyes, often not completely closing. Lips continuous with skin of head. Teeth mostly acute, conic or compressed, none in jaws obtuse or molar like or serrated, usually in 1 or more series, often several pairs of large lower front canines. Premaxillary teeth in 1 or 2 outer rows and 1 to 4 median depressible canines, posterior often very long

and fang like. Front nostrils tubular, on top of snout and hind ones as simple ovate or round pores. Gill openings small slits, horizontal or circular. Vertical fins well developed, dorsal beginning on head, above or before gill openings.

These the most abundant moray in all warm seas. Some reach a large size and are usually powerful and voracious, often very active and savage. They are often found in shallow waters, as lagoons

bays, sounds and especially where rocks and reefs occur.

Many are very variable, often with respect to dentition and change greatly with age. Their coloration is equally variable and often individuals of a species present the widest of tints and designs.

The following nominal species seem to be doubtful:

rocky bottom.

2453

Lycodontis haay (Lacépède)

Muraenophis haay Lacepede, Hist. Nat. Poiss., vol. 5, 1803, p. 646, pl. 17, fig. 2. No locality (Collection Noël, of Rouen; drawing).

2454

Lycodontis scriptus (Schneider)

Gymnothorax scriptus Schneider, Syst. Ichth. Bloch, 1801, p. 529. "Australia." — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 94 (copied). — Mc Culloch, Austral. Mus. Mem., vol. 5, pt. 1, June 29, 1929, p. 72 (reference).

2455

Lycodontis microphoecilus (Bleeker)

Muraena microphoecilus Bleeker, Natuurk. Tijdr. Nederl. Indië, vol. 8, 1855, p. (446) 459. Kokos Islands. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 94 (type).

Muraena (Gymnothorax) microphoecilus Weber and Beaufort, Fishes Indo-Austral. Archipelago, vol. 3, 1916, p. 387 (type).

Gymnothorax microphoecilus Bleeker, Verslagen Kon. Akad. Wet. Amsterdam, ser. 2, vol. 2, 1868, p. 300 (Waigiu); Atlas Ichth. Ind. Neêrl., vol. 4, 1864, p. 105, pl. (38) 182, fig. 1 (Cocos, Singapore, Amboina, Rotti, Timor).

Lycodontis microphoecilus Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 58 (compiled).

24556

Lycodontis macrosiphon (Bleeker)

Gymnothorax macrosiphon Bleeker,
Verh. Batav. Genootsch., vol. 4, 1873, p. 154.
China.

2457

Lycodontis aulopterus (Filippi)

Muraena auloptera Filippi, Rev. Mag. Zool., 1853, p. 168. Mauritius.

Gymnothorax? aulopterus Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 72 (reference).

Lycodontis cerino-niger (Richardson)
Muraena cerino-nigra Richardson,
Ichth. China Japan, 1846, p. 314.
Canton.

Gymnothorax cerinoniger Chu, Biol.
Bull. St. John's Univ. Shanghai, No. 1,
Jan. 1931, p. 28 (reference).

2459

Analysis of species

a.' Medial teeth on premaxillary long slender depressible fangs. C. C.

b.' Lycodontis. Head less than 12; teeth entire.

c.' Canine teeth present.

d.' Hind nostrils without elevated rim.

e.' Maxillary teeth uniserial or with inner front row of 1 to 4 fang like teeth, absent with age.

f.' Head, trunk and tail uniform brown.

g.' Dorsal moderate, lower than height above vent; depth 12 to 20.

afer.

g.² Dorsal high, above vent equals body height; depth 20 to 26. hepatica.

f.² Head, trunk and tail more or less distinctly marbled or reticulated;

-gill opening not in black blotch; no dark spot behind eye or at mouth corner; no distinct white spot on jaws.

h.' Yellowish, marbled and reticulated with dark brown, sometimes finely mottled with dark and yellowish; vomerine teeth biserial (except with age, when uniserial). richardsonii.

h.² Body dark, with network of white or yellowish lines; vomerine teeth uniserial.

i.' Tail shorter than rest of fish; lines on body and tail very fine; head 3 3/5 to 3 9/10 to vent. pseudothyrsoidea.

i.² Tail longer than or nearly equals rest of fish; lines on body and tail rather coarse; head 3 to 3 4/5 to vent. undulata.

i.³ Tail little longer or shorter than rest of fish; lines on body and tail rather

coarse; head 4 to vent. fuvaginea.

f.[3] Dark brown streaks behind mouth corner; anal edge whitish.

j.[1] More or less distinct white spots on jaws (no large dark spot behind eye and no white spots on body and tail).

chilorpilas.

j.[2] No white spots on jaws.

k.[1] Irregular dark brown blotches more or less confluent into transverse band like spots. nubila.

k.[2] Network of large black meshes, 3 or 4 transversely, meshes smaller towards head, form transverse bars toward end of tail.

sagenodeta.

f.[4] Head, trunk and tail with distinct dark spots, more or less arranged in rows; sometimes large dark or postocular

spot; gill openings not in black blotch.

l.' Head and trunk little less than tail.

m.' Spots smaller than interspaces, much smallest on head; head 3 1/2 to 4 1/3 to vent; mouth cleft 2 2/3 in head. melanospila.

m.² Spots larger than interspaces, not smaller on head; head 3 1/3 to vent; mouth cleft 2 1/6 to 2 1/3. reevesii.

l.² Head and trunk 2 in tail; yellowish, with 3 alternating longitudinal series of rounded brown spots, median series largest. tigrina.

E.⁵ Gill openings in dark brown or black blotch.

w.[1] Edges of one or both vertical fins narrowly whitish.

o.[1] No black blotch at rictus; head 4 to 4 2/3 to vent. flavimarginata.

o.[2] Black blotch in rictus; head 3 to 3 1/2 to vent. leidaloo.

m.[2] Fin edges not white; region of gill opening and lower eye diffusely blackish; head 3 4/5 to vent. mierosewskii.

L.[6] Head, trunk and tail with distinct dark crossbands.

La.[1] Brown crossbands 13 encircling body completely, narrower than interspaces. chlamydata.

La.[2] Crossbands 15 to 20 encircling body, much narrower than interspaces. rüppelli.

2464

f. 3 Crossbands 17 to 24, interrupted on belly, usually larger than interspaces, first band through snout. petelli.

f. 4 Crossbands 30, irregular, partly encircle body, wide as interspaces, spotted on dorsal portion.
punctato-fasciata.

f. 5 Crossbands about 40, irregular, variable, partly encircle body, much narrower than pale interspaces and more extensive on dorsal region, reticulations on dorsal and caudal, woodwardi.

f. 7 Reddish brown, with large round pale spots, less numerous or absent below, 2 rows on dorsal, 1 row on anal.
leucostigma.

f. 8 Purplish brown, with numerous small white spots, ringed black. punctata.

d. 2 Maxillary teeth biserial or triserial, inner row at least of 5 teeth, usually 1 more.

g. 1 Mouth cleft 3 4/5 to 4 1/5 in head; head 4 or less to vent; single peripheral

series of teeth on premaxillary; brownish yellow, with small white spots, specks and marks. tile.

♀. [2] Mouth cleft 3 2/3 in head; head 4 1/5 to 5 to vent; peripheral series of teeth on premaxillary biserial; greenish olive, paler below. sathete.

♀. [3] Mouth cleft 3 1/2 in head; head 5 to 6 to vent; peripheral teeth of premaxillary biserial; yellowish brown, irregularly rounded, mostly black confluent spots, as horizontal bands on head. polyuranodon.

♀. [4] Mouth cleft 1 4/5 to 2 in head; head 2 3/5 to 4 to vent; peripheral teeth on premaxillary biserial.

1. Body variably spotted darker or paler; tail tipped white in young. meleagris.

2. Brown, with 4 regular longitudinal series of pale blue spots size of eye; fins with narrow blue edge. stellifera.

r.[3] Olive gray; snout white with brown band from edge of upper lip, over front nostril and orbit.
Callorhyncha.

d.[2] Hind nostrils with elevated tubiform rim; snout long and narrow; gape wide, twice head; 35 to 40 teeth each side of mandible; color uniform.
Schismatorhyncha.

c.[2] No vomerine teeth; body and fins with large light ocelli. Pluronodon.

b.[3] Priodonophis. Head less than 9; some of teeth finely serrated on both edges or posteriorly only.

s.' Vomerine teeth biserial or uniserial.

t.' Color uniform.

u.' Tail tapering, longer than rest of fish.
angustata.
Kner

u.[2] Tail scarcely tapering, shorter than rest of fish.

v.' No black postocular blotch.
moluccensis.

v.² Large black postocular blotch.
monostigma.

t.² Body with crossbands, distinct on belly; tail longer than rest of fish.
reticularis.

s.² No vomerine teeth; body with numerous white spots, fewer and larger posteriorly.
multivomer.

a.² Thyrsoidea. Medial teeth in premaxillary plated 1 or 2, conic, not longer than those of peripheral series.

w.' Maxillary teeth uniserial (biserial in very young).
picta.

w.² Maxillary teeth biserial.
thyrsoidea.

2468

Lycodontis afer (Bloch)

Gymnothorax afer Bloch, Naturgesch.
Ausl. Fische, vol. 9, 1795, p. 85, pl. 417.
"Guinea" (erroneous locality). — Schneider,
Syst. Ichth. Bloch, 1801, p. 526 (India,
Malabar). —? Evermann and Seale,
Bull. Bur. Fisher., vol. 26, 1906 (1907),
p. 56 (Bacon).

Gymnothorax afra Boulenger, Proc. Zool.
Soc. London, 1892, p. 135 (Muscat).

Muraenophis afra Lacépède, Hist. Nat.
Poiss., vol. 5, 1803, pp. 628, 642
("Guinea").

Muraena afra Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 123 (types of Muraena monochrous, Muraena proxima, Muraena boxchii, Port Essington, Sydney). — Schmeltz, Cat. Mus. Godeffroy, no. 6, 1877, p. 17 (Sydney). — Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, 1878, p. (355) 395 (Port Jackson). — Day, Fishes of India, pt. 4, 1878, p. 71; Fauna British India, Fishes, vol. 1, 1889, p. 80. — (Regan) Bedot, Rev. Suisse Zool., vol. 17, 1909, p. 169 (Amboyna).

Muraena prasina Richardson, Ichth. Voy. Erebus and Terror, 1844-48, p. 93. Australia.

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Thyrsoidea prasina Kaup, Archiv Naturges., 1856, pt. 1, p. 65 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 94 (compiled).

Gymnothorax prasinus Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 53, pt. 1, 1866, p. 473 (Port Jackson). — McCulloch, Austral. Mus. Mem., vol. 5, pt. 1, June 29, 1929, p. 71 (compiled).

Strophidon africana McClelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 214 (on Lacépède).

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Muraena boschii Bleeker, Verhand. Batavia. Genoots. (Muraen.), vol. 25, 1853, p. (14) 52. Sibogha, Sumatra.

↑ Muraena (Gymnothorax) boschi Weber and Beaufort, Fishes Indo Australian Archipelago, vol. 3, 1916, p. 386 (Simalur; Roti).

Fish Brit. Mus., 1856, p. 87 (compiled).

Gymnothorax boschi Bleeker, Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 105, pl. (46) 190, fig. 3 (Sumatra, Java).

— Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 218 (Zamboanga, Manila, Mindoro).

Muraena boschii Bleeker, Verhand. Batavia. Genootsch. (Muraen.), vol. 25, 1853, p. (14) 52. Sibogha, Sumatra.

→ Thyrsoidea boschi Kaup, Archiv Naturges., 1856, pt. 1, p. 62 (reference).

Thyrsoidea boschii Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 87 (compiled).

Gymnothorax boschi Bleeker, Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 105, pl. (46) 190, fig. 3 (Sumatra, Java).

— Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 218 (Zamboanga, Manila, Mindoro).

Gymnothorax boschii Mc Culloch, Australian Mus. Mem., vol. 5, pt. 1, June 29, 1929, p. 71 (reference).

Muraena monochrous Bleeker, Naturk. Tijdschr. Nederl. Indië, vol. 10, 1856, p. 384. Ternate.

Gymnothorax monochrous Bleeker, Atlas Ichth. Ind. Néerland, vol. 4, 1864, p. 106, pl. (47) 191, p. 2 (Singapore, Sumatra, Amboina).

Gymnothorax jacksoniensis Bleeker, Kon. Verslagen, Meded. Akad. Wet. Amsterdam, vol. 15, 1863, p. 450. Port Jackson.

? Gymnothorax aterrimus (not Kaup) Bleeker, Nederl. Tijdschr. Dierk., vol. 2, 1865, p. 244. (East Indies).

? Gymnothorax maculaepinnis (not Bleeker) Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 53, pt. 1, 1866, p. 473 (Port Jackson).

? Gymnothorax brunneus Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 212, fig. (teeth). Puerto Galera, Mindoro.

? Muraena krullii Hector, Trans. New Zealand Inst. Sci., vol. 9, 1877, p. 468, pl. 8 (lower figure). Bay of Islands, New Zealand.

depth 1 2/5; head 3 1/4, 3 7/8 to vent, width 2 3/4 in its length; combined head and trunk 1 1/8 in tail. Snout 5 in head; eye 9 1/2, 1 3/4 in snout, 1 1/4 in interorbital; mouth cleft extends 1 3/4 eye diameters behind eye, length 2 in head; teeth in jaws uniserial, on premaxillary with row of 3 large depressible medial ones surrounded by outer series of 11 larger teeth than most of jaw teeth; vomerine teeth short, strong, uniserial; interorbital 7 1/2,

2475

low, depressed, little convex. Gill opening 1½ in eye.

Dorsal origin about last third in postrictal space, fin higher than anal; caudal very short.

Uniform dark brown. Fin edges slightly and narrowly paler than rest of fins. Iris gray.

Arabia, India, Singapore, East Indies, Philippines, Western Australia, New South Wales, New Zealand?

2476

8427. Pandanon Island. March 24, 1909. Length 498 mm.

2417

Lycodontis hepatica (Rüppell)

Muraena hepatica Rüppell, Atlas Reise nördl. Afrika, Fische, 1828, p. 120. Red Sea. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 122 (type of Muraena albomarginata). — Kleinzinger, Verhand. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 614 (Red Sea). — Schmeltz, Cat. Mus. Godeffroy, no. 5, 1874, p. 38 (Navay); no. 7, 1879, p. 160 (Navaii).

Muraena (Gymnothorax) hepatica Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 385 (Banjuwangi, Java; Kamjungan, Ketjil Island; Haleyer; Ambon).

Strophidon hepatica Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 215 (Red Sea).

Gymnothorax hepatica Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (South Sea). — Fowler, Occas. Pap. Bishop Mus., vol. 8, no. 7, 1923, p. 375 (Honolulu).

Gymnothorax hepaticus Weber, Siboga Expedt., vol. 57, Fische, 1913, p. 57 (Kamiungan Ketjil, Ambon, Saleyer).

Lycodontis hepatica Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 58, pl. 2 E (Honolulu); vol. 11, No. 5, 1931, p. 318 (reference).

Muraena albimarginata Schlegel, Fauna Japonica, Poiss., pts. 10–14, 1846, p. 267, pl. 118. Japan (on drawing by Bürger). — Bleeker, Act. Soc. Sci. Ind. Néerl., No. 3, vol. 3, 1857–58, p. 6 (Japan).

Muraena albomarginata Bleeker, Verh. Batavia. Genootsch. (Nat. Geneesk. Japan), vol. 25, 1853, p. 20 (reference).

Gymnothorax albimarginatus Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 107, pl. (38) 182, fig. 2, pl. (40) 184, fig. 3 (Amboina, Buro). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 880 (compiled). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 492 (Okinawa).

Gymnothorax albomarginatus Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 26 (Savay). — Franz, Abhandl. Kon. Bayer. Akad. Wiss., vol. 4, Suppl. Band I, 1910, p. 16 (Aburatsubo).

? Muraena hemprichii Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 613. Red Sea.

Depth 23 1/2; head 8, 3 2/5 to vent, width 4 1/4 in its length; combined head and trunk 1 1/4 in tail. Snout 5 1/3 in head; eye 10, 1 3/4 in snout, 1 2/5 in interorbital; mouth cleft extends eye diameter behind eye, length 2 4/5 in head; teeth uniserial in jaws and on vomer;

3 large medial depressible teeth in row on premaxillary; several of anterior jaw teeth little enlarged; interorbital 8 1/5, nearly level, low. Gill opening long as eye.

Dorsal origin nearly median in postorbital space, fin much higher than anal or nearly high as body depth over vent.

Uniform brown, little paler on under surface of head, less so on belly. Fins little darker or dusky marginally but without

Cyrtosentis
Labracophas krulli (Hector)

? Muraena krulli Hector, Trans. New Zealand Inst. Vol. 9, 1877, p. 468, pl. 8. v. 1 (lower figure) New Zealand.

Bay of Islands,

white edges. Iris gray.

Red Sea, Madagascar, East Indies, Philippines, Riu Kiu, Japan, Polynesia, Hawaii.

12531. Tilig, Lubang Island. July 14, 1908. Length 207 mm.

Lycodontis richardsonii (Bleeker)

Muraena richardsonii Bleeker, Naturk. Tijdschr. Nederl. Indië, vol. 3, 1852, p. 296. Wahai, Ceram; Padang, Sumatra. — Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (Tonga Islands, Rarotonga). — Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (Tonga). — Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 423 (Savaii); Denks. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 71, pt. 1, 1907, p. 158 (Kalamuye). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 414 (New Lauenburg, Duke of York Island; Samoa; Society Islands; Friendly Islands; Fiji). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 246 (Bora Bora, Society Islands).

Muraena richardsoni Kaup, Archiv Naturges., 1856, pt. 1, p. 58 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 62 (Borneo). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 118 (types of Muraena ceramensis, Muraena richardsonii, Muraena scoliodon, Zanzibar, Amboina [fide Houtman's Abrolhos]).

— Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (Tonga; Rarotonga). — Martens, Preuss. Exped. Ost Asien, vol. 1, 1876, p. 406 (Pulotibus at Benculen). — Günther, Rep. Voy. Challenger, vol. 1, pt. 6, 1880, p. 54 (Cebu), p. 58 (Tahiti). — (Regan) Bedot, Rev. Suisse Zool., vol. 17, 1909, p. 189 (Amboina).

Muraena (Gymnothorax) richardsoni Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 383, fig. 189 (head) (Aru, Solor, Luma, Timor, Aru, Kalawatti, Waigiu, types of Gymnothorax ceramensis, Gymnothorax leoliodon and Gymnothorax strocheli).

Gymnothorax richardsoni Bleeker, Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 100, pl. (42) 186, fig. 2 (Sumatra, Bali, Borneo, Ternate, Ceram, Goram, Timor). — Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 56 (San Fabian). — Weber, Siboga Exped., vol. 15, Fische, 1913, p. 60 (part). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 226, pl. 11, fig. 4 (Vitanbi, Davao, Dumaguete, Cabalian, Caldera Bay, Puerto Gallera).

Gymnothorax richardsonii Kner, Reise Novara, Fische, 1865, p. 385 (Tahiti). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 240 (Hibuyan).

Lycodontis richardsonii Fowler, Hem. Bishop Mus., vol. 10, 1928, p. 58, fl. 2 d (Honolulu, Society Islands; Samoa, Bora Bora, types of Gymnothorax hilonis and Gymnothorax liemdti); vol. 11, no. 5, 1931, p. 318 (reference).

? Muraenophis lineata Lesson, Voy. Coquille, vol. 2, pt. 1, 1830, p. 127, pl. 11, fig. 1. Oualan.

Gymnothorax lineatus Jordan and Veale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 202 (Apia).

? Muraenophis flaveola Lesson, Voy. Coquille, vol. 2, pt. 1, 1830, p. 128, pl. 11, fig. 2. Oualan.

Muraena nubila (part) Richardson, Voy. Erebus and Terror, Ichth., 1844–48, p. 81 (Houtman's Abrolhos).

Muraena grisea (not Lacépède) Bleeker, Verh. Batavia. Genootsch. (Bali), vol. 23, 1848 (1849), p. 11.

Gymnothorax richardsonii Jordan and Richards

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Muraena scoliodon Bleeker, Verh. Batavia. Genootsch. (Muraen.), vol. 25, 1853, p. 43. Siboga.

Gymnothorax scoliodon Bleeker, Atlas Ichth. Ind. Neêrland, vol. 4, 1864, p. 101, pl. (40) 184, fig. 2 (Sumatra, Timor).

Muraena troscheli Bleeker, Verh. Batavia. Genootsch. (Muraen.), vol. 25, 1853, p. 45. Boleling, north. Bali; Siboga.

Muraena troscheli Kaup, Archiv Naturges., 1856, pt. 1, p. 58 (reference).

Muraena ceramensis Bleeker, Verh. Batavia. Genootsch. (Muraen.), vol. 25, 1853, p. 51. Wahai, Ceram.

Thyrsoidea ceramensis Kaup, Archiv Naturges., 1856, pt. 1, p. 62 (Ceram, Java, Sumbawa); Cat. Apodal Fish Brit. Mus., 1856, p. 87 (compiled).

Gymnothorax ceramensis Bleeker, Atlas Ichth. Ind. Neêrland, vol. 4, 1864, p. 101, pl. (33) 177, fig. 3 (Java, Celebes, Buro, Amboina, Ceram, Flores, Timor); Verslagen Kon.

Pisces. Akad. Wet. Amsterdam, ser. 2, vol. 2, 1868, p. 300 (Waigiu).

Gymnomuraena ceramensis Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 27 (Savu).

Muraena floriziana Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 6, 1854, p. 334. Larantuka, Flores.

Gymnothorax floresianus Bleeker, Nederl. Tijdschr. Dierk., vol. 1, 1863, p. 252 (reference).

Muraena vermicularis Peters, Archiv Naturges., 1855, pt. 1, p. 271. Ibo, Querimba Island, Mozambique. — Kaup, Archiv Naturges., 1856, pt. 1, p. 57 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 57 (copied).

Muraena diplodon Peters, Archiv Naturges., 1855, pt. 1, p. 272. Querimba, Island.

Muraena venosa Kaup, Archiv Naturges., 1856, pt. 1, p. 58. Timor (Leyden; no description or figure); Catl. Apodal Fish Brit. Mus., 1856, p. 68 (types).

Gymnothorax venosus Bleeker, Nederland Tijdschr. Dierk., vol. 1, 1863, p. 272. (reference).

Thyrsoidea multifasciata Kaup, Archiv Naturges., 1856, pt. 1, p. 62. No locality; Cat. Apodal Fish Brit. Mus., 1856, p. 87 (Moluccas).

Gymnothorax hilanis Jordan and Evermann, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 167. Hilo; vol. 23, pt. 1, 1903 (1905), p. 102, pl. 18 (type).

Gymnothorax berndti Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518, pl. 4, fig. 8. Honolulu. — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 98, pl. 15, fig. 2 (type).

depth 13 to 15 3/4; head 7 3/5 to 9 1/5, 3 7/5 to 3 3/5 to vent, width 3 1/8 to 4 in its length; combined head and trunk 1 1/8 to 1 3/5 in tail. Snout 6 to 6 1/2 in head; eye 8 1/2 to 9 1/2, 1 1/8 to 1 4/5 in snout, greater than interorbital in young to 1 1/4 in interorbital with age; mouth cleft extends ^ 1/2 to 2/3 eye diameter behind eye, length 2 1/3 to 2 1/2 in head; teeth in jaws and on vomer uniserial; premaxillary with row medially of 0 to 3 depressible long teeth surrounded

Muraenophis hemprichii (Klunzinger)

? Muraena hemprichii Klunzinger, Verh. Zool. Bot. Ges. Wien, vol. 21, 1871, p. 613. Red Sea.

Muraena hepatica (Ehrenberg) Klunzinger, Verh. Zool. Bot. Ges. Wien, vol. 21, 1871, p. 613 (name in synonymy).

by loup of 10 to dozen large teeth; interorbital 7½ to 9, low, broadly convex. Gill opening slightly less than eye.

Dorsal origin opposite last ¼ to ⅜ in postorbital space, fin little higher than anal.

Light or pale brown, finely marbled, mottled, clouded or blotched with darker broun, but markings nowhere sharply defined or greatly contrasted. Young with vertical fins more whitish marginally.

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Sokotra, Zanzibar, Mozambique,
Cargados Carajas, East Indies
Philippines, Western Australia,
Melanesia, Polynesia, Hawaii.

10528. Cebu market. August 17, 1909.
Length 313 mm.

1 example. Reef opposite Cebu.
April 5, 1908. Length 145 mm.

2491

Lycodontis pseudothyrsoidea (Bleeker)

Muraena pseudothyrsoidea Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 3, 1852, p. (740) 778. Macassar. — Kaup, Archiv Naturges., 1856, pt. 1, p. 58 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 65 (Macassar, Bombay, Pondicherry). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 112 (type). — Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, 1876, p. 351 (Darnley Island). — Peters, Monatsber. Akad. Wiss. Berlin, 1876, p. 446 (Mauritius). — Day, Fishes of India, pt. 4, 1878, p. 670, pl. 173, fig. 3; Fauna British India, Fishes, vol. 1, 1889, p. 79. — Deraniyagala, Ceylon Administrat. Rep., 1925, p. F 15.

Muraena (Gymnothorax) pseudothyrsoidea Weber and Beaufort, Fishes Indo-Austral. Archipelago, vol. 3, 1916, p. 384 (Macassar; type; type of Muraena macassariensis)

Gymnothorax pseudothyrsoideus Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 104, pl. (46) 190, fig. 2 (Celebes; Amboina). — Jordan and Richardson, Mem. Carnegie Mus., vol. 4, no. 4, Aug. 28, 1909, p. 130 (Takao). — Herre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 229 (Manila Bay).

Gymnothorax makassariensis Bleeker, Nederland. Tijdschr. Dierk., vol. 1, 1863, p. 168. Macassar; Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 104, pl. (37) 181, fig. 3 (type).

Muraena macassariensis Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 111 (China, Cape York, type of Thyrsoidea macrops). — Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (Tahiti). — Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (Tahiti).

Muraena macassariensis Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 592 (Luzon, Manila, Malabar, Bulacan).

Lycodontis macassariensis Fowler, Mem. Bishop Mus., vol. 11, no. 5, 1931, p. 318 (reference).

Muraena thyrsoidea (part) Richardson, Voy. Sulphur, Fishes, 1844, pl. 49, fig. 1 (not description).

Muraena elegantissima Kaup, Archiv Naturges., 1856, pt. 1, p. 58. Australia? (Paris Museum; no description or figure); Cat. Apodal Fish Brit. Mus., 1856, p. 67 (type).

Thyrsoidea macrops Kaup, Archiv Naturges., 1856, pt. 1, p. 60. No locality (Paris Museum; no description or figure); Cat. Apodal Fish Brit. Mus., 1856, p. 74. No locality.

Gymnothorax philippinus Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 7, fig. 2. Philippines.

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Lycodontis undulatus (Lacépède)

Muraenophis undulata Lacépède, Hist. Nat. Poiss., vol. 5, 1803, pp. 629, 644, pl. 64, fig. 2. No locality (on Commerson).

Muraena undulata Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 110 (Zanzibar, East Indies, Hawaiian Islands, types of Muraena agassizi and Muraena blochii). — Klunzinger, Verh. Zool. Bot. Ges. Wien, vol. 21, 1871, p. 615 (Red Sea). — Martens, — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (Samoa; Viti Levu). 1876, p. 351 (Low Island). — Streets, Bull. U. S. Nat. Mus., No. 7, 1877, p. 77 (Honolulu). — Day, Fishes of India, pt. 4, 1878, p. 671, pl. 171, fig. 5, pl. 173, fig. 2 (adult). — Klunzinger, Sitz. Ber. Akad. Wiss. Wien, Math.-Naturw. Klasse, vol. 80, pt. 1, 1879, p. 419 (Port Denison). — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (Samoa and Viti Levu). — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 39 (Viti and Samoa). — Boulenger, Proc. Zool. Soc. London, 1887, p. 666 (Muscat). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 80. — Boulenger, Ann. Mag. Nat. Hist.,

Lycodontis undulatus (Lacépède)

Muraenophis undulata Lacépède, Hist. Nat. Poiss., vol. 5, 1803, pp. 629, 644, pl. 64, fig. 2. No locality (on Commerson).

Muraena undulata Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 110 (Zanzibar, East Indies, Hawaiian Islands, types of Muraena agassizi and Muraena blochii). — Klunzinger, Verh. Zool. Bot. Ges. Wien, vol. 21, 1871, p. 615 (Red Sea). — Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Singapore). — Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, 1876, p. 351 (Low Island). — Streets, Bull. U. S. Nat. Mus., No. 7, 1877, p. 77 (Honolulu). — Day, Fishes of India, pt. 4, 1878, p. 671, pl. 171, fig. 5, pl. 173, fig. 2 (adult). — Klunzinger, Sitz. Ber. Akad. Wiss. Wien, Math.-Naturw. Klasse, vol. 80, pt. 1, 1879, p. 719 (Port Denison). — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (Samoa and Viti Levu). — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 39 (Viti and Samoa). — Boulenger, Proc. Zool. Soc. London, 1887, p. 666 (Muscat). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 80. — Boulenger, Ann. Mag. Nat. Hist.,

ser. 6, vol. 20, 1897, p. 374 (Rotuma). — Pellegrin, Bull. Mus. Hist. Nat. Paris, vol. 4, 1898, p. 228 (Mariannes). — Steindachner, Denksr. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 70, 1901, p. 515 (South Sea). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 413, pls. 164–165 (Hawaiian and Society Islands). — Zugmayer, Abhandl. Kön. Bayer. Akad. Wiss., math.-phys. Klasse, vol. 26, band 6, 1913, p. 9 (Mekran; Oman). — Regan, Ann. Durban Mus., vol. 1, 1914–17, p. 458 (Durban). — Deraniyagala, Ceylon Administrat. Rep., 1925, p. F15.

Muraena (Gymnothorax) undulata Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 13, 1916, p. 376, fig. 186 (Kaimana, New Guinea; Waigiu).

Gymnothorax undulatus Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 426 (Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (Honolulu; off Molokai). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 98, pl. 16 (Honolulu; Samoa). — Steindachner, Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1423 (Upolu). —

Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 9 (Tubuai, Austral Islands; Raiatea, Society Islands). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 202 (Apia, Hawaii). — Fowler and Bean, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 21 (Hawaiian Islands). — Fowler, Copeia, no. 112, Nov. 20, 1922, p. 82 (Hawaii). — Herre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 220, pl. 9, fig. 1 (Calapan, Puerta Galera, Samal, Dumaguete, Tandag).

Lycodontis undulata Fowler, Bull. Bishop Mus., no. 22, 1925, p. 5 (Guam), p. 31 (Samoa). — Fowler and Ball, Bull. Bishop Mus., no. 26, 1925, p. 7 (French Frigates Shoal, Wake Island). — Fowler, Bull. Bishop Mus., no. 38, 1927, p. 6 (Fanning, Tongareva, Howland, French Frigates Shoal); Mem. Bishop Mus., vol. 10, 1928, p. 56 (Honolulu, Wake, French Frigates Shoal, Tahiti, Tubuhiva, Raiatea, Tubuai, Guam, Marcus, Palmyra, Honomuni, Mauna Loa Bay, Apia, Fiji, Samoa, Fakarava, Society, Ascension, Apiang, types of Gymnothorax detactus, Gymnothorax zonipectus, Gymnothorax mucifer, Gymnothorax gracillicauda, Muraena acutirostris and Thyrsoidea kaupi); vol. 11, no. 5, 1931,

p. 317 (Honolulu, Suva).

Lycodontis undulatus Fowler and Bean, Proc. U. S. Nat. Mus., vol. 71, 1927, p. 2 (Poeloe Toekoes Island, Sumatra).

? Muraenophis stellata Lacépède, Hist. Nat. Poiss., vol. 5, 1801, pp. 629, 644. New Britain.

Pharodontis stellata Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 216 (copied).

Gymnothorax stellatus Jordan and Seale, Bull. Bur. Fisheries, vol. 25, 1905 (1906), p. 199 (Apia). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 248 (Fakarava, Paumotus). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 21 (Padang; Apia). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 492 (Okinawa; Samoa).

Muraena marmorata Quoy and Gaimard, Voy. Uranie, Zool., 1824, p. 247. Waigiu; Rawak.

Muraena cinerascens Rüppell, Atlas Reise nördl. Afrika, Fische, 1829, p. 120. Mohila, Red Sea. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 123 (copied). — Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 615 (compiled).

Thaerodontis cinerascens Luc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 216 (Mohila).

Gymnothorax cinerascens Bleeker, Reck. Faune Madagascar, pt. 4, 1874, p. 72 (reference).

Muraenophis lineata Lesson, Voy. Coquille, Zool., vol. 2, 1830, p. 127, pl. 11, fig. Dualan.

Muraena fimbriata Bennett, Proc. Comm. Zool. Soc., vol. 1, 1831, p. 168. Mauritius. — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (South Sea). — Günther, Cruise of Curacoa, 1874, p. 410 (Solomons). — Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Banda I. Amboina, Riu-Kiu, Japan). — Day, Fishes of India, pt. 4, 1878, p. 670, pl. 172, fig. 1.

(Cocos Islands). — Kner, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (South Sea). —

Muraena cinerascens Rüppell, Atlas Reise nördl. Afrika, Fische, 1829, p. 120. Mohila, Red Sea. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 123 (copied). — Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 615 (compiled).

Thaerodontis cinerascens Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 216 (Mohila).

Gymnothorax cinerascens Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 72 (reference).

Muraenophis lineata Lesson, Voy. Coquille, Zool., vol. 2, 1830, p. 127, pl. 11, fig. Gualan.

Muraena fimbriata Bennett, Proc. Comm. Zool. Soc., vol. 1, 1831, p. 168. Mauritius. — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (South Sea). — Günther, Cruise of Curacoa, 1874, p. 410 (Solomons). — Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Benculen; Amboin River; Larentuka; Flores). — Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, 1876, p. 353 (Torres Straits). — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (South Sea). —

Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 39. (South Sea). — Day, Fauna British India, Fishes, vol. 4, 1889, p. 79. — Bartlett, Sarawak Gazette, vol. 26, No. 368, 1896, p. 180 (reference). — Boulenger, Ann. Mag. Nat. Hist., ser. 6, vol. 20, 1897, p. 374 (Rotuma). — Steindachner, Denksr. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 70, 1901, p. 514 (Samoa). — (Regan) Bedot, Rev. Suisse Zool., vol. 17, 1909, p. 169 (Amboina).

Muraena fimbriata Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 592 (Luzon, Cavite, Santa Cruz).

Gymnothorax fimbriatus Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 72 (reference). — Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, 1904, p. (Padang). — Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1423 (Lepolu).

Gymnothorax fimbriata Veale and Bean, Proc. U. S. Nat. Mus., vol. 33, 1906, p. 239 (Zamboanga).

Muraena valenciennii Eydoux and Soulayet, Voy. Bonite, Zool., vol. 1, 1841, p. 207, pl. 8, fig. 1. Hawaiian Islands.

Muraena tenebrosa Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 84. No locality (probably Society Islands).

Thyrsoidea tenebrosa Kaup, Archiv Naturges. 1856, pt. 1, p. 60 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 78 (copied).

Gymnothorax tenebrosus Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 7 (Tahiti).

? Muraena stellifera Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 86. Madagascar. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 101 (type).

Thyrsoidea stellifer Kaup, Archiv Naturges., 1856, p. 61 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 80 (copied).

Muraena bullata Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 86. Borneo.

Thyrsoidea bullata Kaup, Archiv. Naturges., 1856, pt. 1, p. 61 (Java); Cat. Apodal Fish Brit. Mus., 1856, p. 81, pl. 12, fig. 60 (head) (copied). — Guichenot, Notes I le Reunion, vol. 2, 1862, p. 30.

Gymnothorax bullatus Bleeker, Atlas Ichth. Ind. Néerland, vol. 4, 1864, p. 91, pl. (27) 171, fig. 2, pl. (43) 187, fig. 3 (Sumatra, Java, Borneo, Ternate, Buro).

Muraena cancellata Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 87, pl. 46, figs. 1-5. Western Australia; Cape Upstart; Sumatra. — Macleay, Proc. Linn. Soc. New South Wales, vol. 8, 1883, p. 278 (Hood Bay, New Guinea).

Thyrsoidea cancellata Kaup, Archiv Naturges., 1856, pt. 1, p. 60 (Australia; Cape Upstart; Hawaiian Islands); Cat. Apodal Fish Brit. Mus., 1856, p. 76, pl. 12, fig. 59 (head) (Cape Upstart, Sumatra, Western Australia). — Schmelz, Cat. Mus. Godeffroy, No. 2, 1865, p. 9 (Samoa); No. 3, 1866, p. 12 (Samoa);

No. 4, 1869, p. 26 (Samoa).

Thyrsoidea (Muraenophis) cancellata Guichenot, Mém. Soc. Sci. Nat. Cherbourg, ser. 2, vol. 2, 1866, p. 147 (Madagascar).

Gymnothorax cancellatus Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 93, pl. (32) 176, fig. 3, pl. (33) 177, fig. 2, pl. (39) 183, fig. 1 (Sumatra, Batu, Singapore, Cocos, Amboina). — Kner, Reise Novara, Fische, 1865, p. 384 (Java; Manila). — Schmeltz, Cat. mus. Godeffroy, No. 4, 1869, p. 26 (Samusi).

? Muraena blochii Bleeker, Verh. Batav. Genootsch. (Muraen.), vol. 25, 1853, p. 49. Siboga.

Thyrsoidea blochi Kaup, Archiv Naturges., 1856, pt. 1, p. 63 (Sumatra; Borneo).

Thyrsoidea blochii Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 90 (Sumatra; Borneo).

Gymnothorax blochi Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 102, pl. (36) 180, fig. 2 (type).

Gymnothorax blochii Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 26 (Savay).

Muraena agassizi Bleeker, Nat. Tijdschr. Nederl. Indië, Deel 8, 1855, p. (446) 458. Kokos Islands, Indian Ocean.

Muraena isingleenoides Bleeker, Verh. Batavia. Genootsch. (Muraen.), vol. 25, 1853, p. 48. Vibogha.

Thyrsoidea isingleenoides Kaup, Archiv Naturges., 1856, pt. 1, p. 60 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 74 (copied).

Gymnothorax isingleenoides Bleeker, Atlas Ichth. Ind. Néerland., vol. 4, 1864, p. 91, pl. (35) 179, fig. 1, pl. (36) 180, fig. 1 (Java, Sumatra, Bali, Nias, Ternate, Buro, Amboina, Ceram, Timor, Aru). — Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 29 (Pelew Islands; Kandavu). — Bleeker, Arch. Néerland. Sci. Nat. Harlem, vol. 13, 1878, p. 38 (New Guinea).

Muraena isingteena (not Richardson) Bleeker, Nat. Tijdschr. Nederl. Indië, vol. 7, 1855, p. 277.

Muraena isingleena Pöhl, Cat. Mus. Godeffroy, 20.9, 1884, p. 40 (South Sea).

Muraena tigrina (Cuvier) Kaup, Archiv Naturgesch., 1856, pt. 1, p. 61. Java (name in synonymy).

Muraena leopardina Kaup, Archiv Naturgesch., 1856, pt. 1, p. 61. Java (name in synonymy).

Muraena melanostigma Kaup, Archiv Naturgesch., 1856, pt. 1, p. 61. Java (name in synonymy).

Muraena acutirostris Abbott, Proc. Acad. Nat. Sci. Philadelphia, 1860, p. 476. Hawaiian Islands.

Lycodontis acutirostris Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1900, p. 494, pl. 15, fig. 5 (type).

Eurymyctera acutirostris Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 605 (copied). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 27 (type).

2525

Thyrsoidea kaupii Abbott, Proc. Acad. Nat. Sci. Philadelphia, 1860, p. 477. Hawaiian Islands.

Lycodontis kaupi Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1900, p. 494, pl. 18, fig. 6 (type).

Gymnothorax kaupii Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 21 (type).

Gymnothorax borneensis Bleeker, Nederland Tijdschr. Dierk., vol. 1, 1863, p. 169 (on Kaup); Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 102, pl. (37) 181, fig. 2 (type).

Gymnothorax margaritophorus Bleeker, Nederland Tijdschr. Dierk., vol. 2, 1864, p. 53. Amboina; Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 97, pl. (31) 175, fig. (type). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 101 (Amboina).

Lycodontis margaritophorus Gilby, Mem. Queensland Mus., vol. 1, 1912, p. 34.

Muraena (Gymnothorax) margaritophora Weber and Beaufort, Fishes Ind. Austral. Archipelago, vol. 3, 1916, p. 382 (type).

Muraena nubila (not Richardson) Günther, Fishes of Zanzibar, 1866, p. 127.

Gymnothorax nubilus Seale, Occas. Pap. Bishop Mus., vol. 2, No. 1, 1902 (1903), p. 7 (Tahiti).

Muraena microspila Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 109 (on example of Gymnothorax bullatus Bleeker). — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (Navay); No. 7, 1879, p. 60 (Navaii).

Lycodontis pseudothyrsoidea (not Bleeker) Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1900, p. 49 (Hawaiian Islands).

Gymnothorax pictus (not Ahl) Seale, Occas. Pap. Bishop Mus., vol. 2, No. 1, 1902 (1903), p. 6 (Tahiti).

Gymnothorax gracilicauda Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 426, fig. 6. Honolulu. — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (off Molokai). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 94, fig. 23 (types).

2507

Gymnothorax detactus Bryan and Herre, Occas. Pap. Bishop Mus., vol. 2, No. 1, 1902 (1903), p. 126. Marcus Island. — Seale, Occas. Pap. Bishop Mus., vol. 4, No. 1, 1906, p. 6 (Tutuhiva, Marquesas Islands).

Gymnothorax zonipectus Seale, Occas. Pap. Bishop Mus., vol. 2, No. 1, 1902 (1903), p. 7, pl., upper fig. Tahiti. — Herre, Philippine Journ. Sci., vol. 4, 1909, p. 224, pl. 11, fig. 3 (type of Gymnothorax indong). — Whitley, Journ. Pan Pacific Res. Inst., vol. 1, No. 2, Jan. March 1927, p. 8 (Rotuma).

Muraena zonipectus Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 45, fig. (head of Rotuma specimen).

Muraena (Gymnothorax) zonipectus Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 381, fig. 181 (head) (Wijnkoops Bay, Java).

Gymnothorax mucifer Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 519, pl. 5, fig. 9. Honolulu.

2508

Gymnothorax talofa (Jordan and Starks) Jordan and Seale, Bull. Bur. Fisher., [illegible] 1905 (1906), p. 201. Fig. 7 Apia.

Gymnothorax wakanoural Tanaka, Journ. College Sci. Tokyo, vol. 23, art. 7, March 15, 1908, p. 24, pl. 2, fig. 4. Wakanoura, Kii.

Gymnothorax indong Seale, Philippine Journ. Sci., vol. 4, 1909, p. 491. Zamboanga.

† Gymnothorax odiosus Snyder, Proc. U. S. Nat. Mus., vol. 35, 1910, p. 94. Kagoshima, Japan; vol. 42, 1912, p. 407, pl. 51 fig. 2 (type).

[illegible] Gymnothorax [illegible] (not Richardson) Weber, Siboga Exped., vol. 57, Fische, 1913, p. 61 (Saleyer).

Gymnothorax talofa (Jordan and Starks) Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 201, fig. 7. Apia.

Gymnothorax philippinus Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 7, fig. 2. Cavite.

Gymnothorax indong Seale, Philippine Journ. Sci., vol. 4, 1909, p. 491. Zamboanga.

Gymnothorax favagineus (not Schneider) Weber, Siboga Exped., vol. 57, Fische, 1913, p. 56 (Banda).

Gymnothorax macassariensis (not Bleeker) Weber, Siboga Exped., vol. 57, Fische, 1913, p. 61 (Jedan Island east of Aru).

Gymnothorax tagenodeta (not Richardson) Weber, Siboga Exped., vol. 57, Fische, 1913, p. 61 (Saleyer).

Depth 12 1/3 to 21 2/3; head 5 4/5 to 8, 3 1/4 to 3 2/3 to vent, width 3 to 4 1/2 in its length; combined head and trunk 1 to 1 1/4 in tail. Snout 5 to 6 in head; eye 7 2/3 to 11 1/2, 1 2/5 to 2 in snout, slightly greater than interorbital in young to 1 1/3 with age; mouth cleft extends 1 1/8 to 2 eye diameters behind eye, length 2 to 2 1/4 in head; teeth uniserial in jaws and on vomer, young with inner maxillary row medially of 1 to 3 large depressible teeth; premaxillary with

row of 3 large median depressible teeth surrounded by outer loup of dozen smaller ones, though larger than maxillaries; interorbital 7 to 11 1/4, convex. Gill opening long as eye.

Brown, often paler below. Very variable with several irregular rows of longitudinally of variably rounded black or oval spots, often larger than eye, or smaller or absent from head or on tail often as transverse rows. Sometimes spots confluent, densely reticulated or marbled with

brown, or pale intervening spaces may be contracted to form strong contrasted network of light or even whitish lines. Iris sometimes with light border.

Red Sea, Arabia, Zanzibar, Natal, Mauritius, Madagascar, India, Ceylon, Singapore, East Indies, Philippines, China, Formosa, Riu Kiu, Japan, Queensland, Western Australia, Melanesia, Micronesia, Polynesia, Hawaii.

23033. Batan Island. July 22, 1909. Length 164 mm.

8409. Cebu market. March 19, 1909. Length 813 mm.

8414. Cebu market. March 20, 1909. Length 690 mm.

9316. Cebu market. August 16, 1909. Length 602 mm.

9375. Cebu market. August 29, 1909. Length 570 mm.

14111 to 14116, 14118. Great Tobea Island. December 15, 1909. Length 174 to 310 mm.

5141. D. 5174. Jolo Light, E. 2.60 miles (N. 6° 3' 45" E. 120° 57'), vicinity of Jolo. In 20 fathoms. March 5, 1908. Length 528 mm.

2513

7047. Jolo, lobster pots. March 7, 1908. Length 260 mm.

22369. Lampinigan Island, south of Zamboanga. September 11, 1909. Length 241 mm.

9213. Mahinog River, Camiguin Island. August 3, 1909. Length 535 mm.

8452. Maribojoc, Bohol. March 26, 1909. Length 576 mm.

23021. Marongas Island. February 10, 1908. Length 162 to 245 mm.

4489. D. 5164. Observation Island, S. 82° W., 8 miles (N. 5° 1' 40" E. 119° 52' 20"), Sulu Archipelago, Tawi Tawi Group. In 18 fathoms. February 24, 1908. Length 160 mm.

23008. Pilas Island. September 12, 1909. Length 144 mm.

2514

12642. Port Palapag. June 3, 1909. Length 287 mm.

6600. Simalue Sibi Sibi Island. September 23, 1909. Length 250 mm.

20110. Ulugan Bay near Bakeli River mouth, Palawan. December 28, 1908. Length 438 mm.

A1610. Naha, Rui Kiu. February 7, 1910. Length 668 mm.

A796. Zamboanga market. October 6, 1909. Length 750 mm.

2515

6271. Medio Island, Galera Bay. June 9, 1908. Length 683 mm. Greatly like Bleeker's figure of Gymnothorax agassizi, the long slender jaws not completely closing and the dark coloration, uniformly and obscurely mottled darker.

2516

916 A.N.S.P. Hawaiian Islands.
Dr. J. K. Townsend. Length 407 mm.
Type of Thyrsoidea kaupi.

998 A.N.S.P. Pacific Ocean. Dr.
J. K. Townsend. Length 585 mm.
Type of Muraena aduticostris.

1 example A.N.S.P. Hawaiian Islands.
Dr. W. H. Jones. Length 451 mm.

1 exampe A.N.S.P. Hawaiian Islands.
Dr. J. K. Townsend. Length 776 mm.
As Gymnothorax pseudothyrsoidea.

1 example A.N.S.P. Hawaiian Islands.
Bureau of Fisheries. Length 843 mm.

Lycodontis fovaginea (Schneider)

Gymnothorax fovaginea Schneider, Syst. Ichth. Bloch, 1801, p. 525, pl. 105. Tranquebar. — Day, Fishes of Malabar, 1865, p. 250 (reference). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 303 (compiled). — Herre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 222, pl. 11, fig. 2 (Manila).

Gymnothorax fovagineus Schmeltz, Cat. Mus. Godeffroy, no. 1, 1864, p. 10 (South Sea); no. 3, 1866, p. 12 (Samoa). — Whitley, Journ. Pan Pacific Res. Inst., vol. 2, no. 1, Jan. March 1927, p. 4 (Fiji). — Herre and Myers, Lignan Sci. Journ., vol. 10, Nos. 2-3, Aug. 1931, p. 249 (Hong Kong).

Muraena favaginea Kaup, Archiv Naturges., 1856, pt. 1, p. 58 ("Paris Museum"); Cat. Apodal Fish Brit. Mus., 1856, p. 68 (copied). — Deraniyagala, Ceylon Administrat. Rep., 1925, p. F15.

Muraena (Gymnothorax) favaginea Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 378, fig. 187 (Doreh, New Guinea).

Lycodontis favaginea Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 57 (Society Islands; Rangiroa); vol. 11, no. 5, 1931, p. 318 (Hervey Islands).

Muraena isingteena Richardson, Voy. Sulphur, Fishes, 1844, p. 108, pl. 48, fig. 1. China Seas; Canton.

Gymnothorax isingteena Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 92, pl. (37) 181, fig. 1 (Celebes); Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference).

2519

Muraena isingleena Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 86 (Canton). — Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 75, pl. 11, fig. 57 (head) (China). — Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 26 (Lagor).

— Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 10 (type of Muraena python, Muraena tessellata, Muraena isingleena, Zanzibar, East Indies, Mauritius).

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↑ 1874, p. 38 (South Sea). — Peters, Monatsber. Akad. Wiss. Berlin, 1876, p. 446 (Mauritius). — Schmeltz, Cat. Mus.

— Day, Fishes of India, pt. 4, 1878, p. 670, pl. 171, fig. 4 (Vizagapatam).

vol. IV, 1889, p. 78. — Steindachner, Denks. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 71, pt. 1, 1907, p. 158 (Bal Hâf, Abd el

Muraena isingleena Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 86 (Canton). — Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 75, pl. 11, fig. 57 (head) (China). — Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 26 (Lagos).

Muraena tessellata Richardson, Voy. Sulphur, Fishes, 1844, p. 109, pl. 55, figs. 5-8. Southern Seas (locality unknown); Voy. Erebus and Terror, Ichth., 1844-48, p. 88 (Southern Seas?). — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (South Sea). — Peters, Monatsber. Akad. Wiss. Berlin, 1876, p. 446 (Mauritius). — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (South Sea). — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 39 (South Sea). — Boulenger, Proc. Zool. Soc. London, 1889, p. 242 (Muscat). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 78. — Steindachner, Denks. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 71, pt. 1, 1907, p. 158 (Bal Hâf, Abd el

Kûri west of Socotra). — Gilchrist and Thompson, Ann. South African Mus., vol. 11, pt. 2, 1911, p. 53 (Natal). — Regan, Ann. Durban Mus., vol. 2, 1914-17, p. 458 (Durban).

Muroena tessellata Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 592 (Luzon, Cavite, Santa Cruz).

Thyrsoidea tessellata Kaup, Archiv Naturges., 1856, pt. 1, p. 60 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 76 (copied).

Gymnothorax tessellatus Bleeker, Act. Soc. Sci. Ind. Néerl., no. 2, vol. 6, 1859, p. 3 (Doreh, New Guinea); Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 93, pl. (27) 171, fig. 3, pl. (28) 172, fig. 1 (Sumatra, Cocos, Batu, Singapore, Duizend Islands, Java, Aru); Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — White, Records Austral. Mus., vol. 5, 1905, p. 3 (Paanopu, Ocean Island, Gilberts). —

Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 247 (Rangiroa, Paumotus).

Thaerodontis reticulata (not Schneider) Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, pp. 188, 216, pl. 7, fig. 1 (Malay coast at Tandoway).

Muraena python Kaup, Archiv Naturges., vol. 22, pt. 1, 1856, p. 58. Africa (no description or figure); Cat. Apodal Fish Brit. Mus., 1856, p. 68, pl. 10, fig. 52 (head) Africa.

Muraena tessellata var. intermedia Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 107. No locality (no figure or description).

2522

Lycodontis chilospila (Bleeker)
Gymnothorax chilospilus Bleeker,
Nederl. Tijdschr. Dierk., vol. 2, 1865,
p. 52. Beneulen, Sumatra; Amboina;
Wahai, Ceram; Kajéli, Buru; Atlas
Ichth. Ind. Néerl., vol. 4, 1864, p. 103,
pl. (45) 189, fig. 2 (Sumatra, Amboina,
Ceram, Buro). — Herre, Philippine
Journ. Sci., vol. 23, No. 2, Aug. 1923,
p. 223, pl. 11, fig. 1 (type of Gymnothorax
samalensis; Leyte).

Muraena chilospilus Günther, Journ.
Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 415
(Tahiti, Rarotonga, Solomons).

Muraena (Gymnothorax) chilospilus Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 379, fig. 188 (head) (types; Weber's materials).

Lycodontis chilospila Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 58 (Society Islands; Samoa).

? Muraena f. mülleri Kaup, Archiv Naturges., 1856, pt. 1, p. 58. Molucca Archipelago (Leyden; no description or figure).

Muraena mulleri Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 69, pl. 11, fig. 54 (head). Malayan Archipelago (Leyden Museum).

2524

Muraena mülleri Hartens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Amboina River).

Gymnothorax mülleri Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 103, pl. (39) 182, fig. 4 (copied).

Gymnothorax zagenodeta (not Richardson) Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 100, pl. (40) 184, fig. 4 (Amboina).

Muraena nubila (not Richardson) (Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 117 (type of Muraena chilospilus; Amboyna). — Hartens, Preuss. Exped. Ost Asien, vol. 1, 1876, p. 406.

Gymnothorax zamalensis Seale, Philippine Journ. Sci., vol. 4, 1909, p. 492. Zamal Island, Mindanao.

2525

Gymnothorax richardsoni (not Lesson) Weber, Siboga Exped., vol. 57, Fische, 1913, p. 60 (Savu, Borneo Bank, Sulu, Beo, Dana, Galewo Strait, Kabaena, Saleyer, Elat, Timor).

Gymnothorax richardsonii Beaufort, Bijdr. Dierkunde, pt. 19, 1913, p. 100 (Saonek, Waigiu).

depth 15 1/4 to 17; head 6 2/3 to 8 1/8,
3 1/5 to 3 2/5 to vent, width 3 3/4 to 4
in its length; combined head and trunk
1 to 1 1/3 in tail. Snout 5 to 5 3/4 in
head; eye 6 2/3 to 8, 1 1/4 to 1 3/5 in
snout, little greater to equal to
interorbital; mouth cleft extends 3/4
to 1 eye diameter behind eye, length
2 1/5 to 2 1/2 in head; teeth uniserial
in jaws and in irregular or double
series on vomer; 3 large canines in
row on premaxillary, depressible, often
posterior largest, surrounded by

loup of teeth little smaller though larger than those of maxillaries; interorbital 7 3/4 to 8, low, little convex. Gill opening 3/5 to 1 in eye.

Dorsal origin opposite last third in postorbital space, little higher than anal and continuous with very short caudal.

Brown or light brown, finely mottled or speckled with darker, often with obscurely defined cross bands, most contrasted on back, tail and fins. Often in small examples pale spots more or less whitish and scattered about dark blotches. Dark blotches often smaller or more broken in young to vertical

fins show more whitish. In very
young whitish still more evident
on vertical fins and spots reduced
to short parallel brown lines vertically
or transversely on fins. In dark
brown of body white spots large, few and
in about. 3 series. These examples
also with greater or all lower surface
of head whitish, which gradually
invaded with brown spots or specks
with age so largest examples retain
but one or 2 small white spots below
eye or at base of mandible.

East Indies, Philippines,
Melanesia, Polynesia.

13166. Cataingan Bay, east of Masbate. April 17, 1908. Length 188 mm.

~~10528. Cebu market. August 17, 1909. Length 313 mm.~~

23022. Marongas Island. February 10, 1908. Length 203 mm.

D. 5165. Observation Island, N. 70° W., 6.40 miles (N. 4° 58' 20" E. 119° 50' 30"), Sulu Archipelago, Tawi Tawi Group. In 9 fathoms. February 24, 1908. Length 5½ to 125 mm. 6 examples.

~~1 example~~. Reef opposite Cebu. ~~April 5, 1908. Length 145 mm.~~

16637. D. 5146. Sulade Island (E.), N. 18° W., 3.40 miles (N. 5° 46' 40" E. 120° 48' 50"), Sulu Archipelago, vicinity of Siasi. In 24 fathoms. February 16, 1908. Length 174 mm.

-530

18234. Basa Reef, Gulf of Boni, Celebes. December 17, 1909. Length 21 mm.

2531

Lycodontis nubila (Richardson)

Muraena nubila Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 81, pl. 46, figs. 6-10. Australia; Mauritius. — Kaup, Archiv Naturgesch., 1856, pt. 1, p. 57 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 57, pl. 9, fig. 48 (head) (copied). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 117 (type); Cruise of Curaçoa, Brenchley, 1873, p. 410 (Solomons). — Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Amboina River). — Schmelty, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (Rarotonga). — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 40 (Rarotonga). — Ishikawa and Matsuura, Prelim. Cat. Fish. Mus. Tokyo, 1897, p. 5. — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 416 (Norfolk and Kandl Islands).

Muraena nubila Elera, Cat. Fauna Filipinas., vol. 1, 1895, p. 593 (Luzon, Cavite, Santa Cruz).

Lycodontis nubila Fowler, Inem. Bishop Mus., vol. 10, 1928, p. 58 (compiled); vol. 11, No. 5, 1931, p. 318 (reference).

Muraena euptera Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 122. Raoul Island.

Lycodontis sagenodeta (Richardson)

Muraena sagenodeta Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 81. Mauritius. — Kaup, Archiv Naturges., 1856, pt. 1, p. 57 (reference). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 117 (type).

Muraena sagenedota Kaup, Cat. Apodal Fish Brit. Mus, 1856, p. 59 (type).

Gymnothorax segenodeta Bleeker, Verh. Faune Madagascar, pt. 4, 1874, p. 73 (reference).

2534

Lycodontis melanopila (Bleeker)

Muraena melanopilos Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 9, 1855, p. (259) 279. Siboga, Sumatra.

Muraena melanopila Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 109 (type). — Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, 1876, p. 353 (Barnley Island); vol. 6, 1881, p. 283 (copied). — Bartlett, Sarawak Gazette, vol. 26, no. 368, 1876, p. 180. (Pulo Satang).

Muroena melanopila Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 52 (Luzon).

Muraena (Gymnothorax) melanopilus Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 375 (type).

Gymnothorax melanopilus Bleeker, Atlas Ichth. Ind. Néerl. vol. 4, 1864, p. 90, pl. (42) 186, fig. 1 (Sumatra; Buro).

2535

Gymnothorax melanospilos Mc Culloch, Austral. Mus. Mem., vol. 5, pt. 1, June 29, 1929, p. 73 (reference).

Gymnothorax pescadoris Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, 1902, p. 326, fig. 8. Hokoto or Pescadores Islands. — Jordan and Richardson, Mem. Carnegie Mus., vol. 4, No. 4, 1909, p. 173, fig. 9 (copied).

2536

Lycodontis reevesii (Richardson)

Muraena reevesii Richardson, Voy. Sulphur, Fishes, 1844, p. 109, pl. 48, fig. 2. China Seas. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 107 (Japan). — Peters, Monatsb. Akad. Wiss. Berlin, 1876, p. 446 (Mauritius).

Muraena reevesii Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (Samoa).

Thyrsoidea reevesii Schmeltz, Cat. Mus. Godeffroy, No. 2, 1863, p. 9 (Samoa).

Thyrsoidea reevesii Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 26 (Samoa).

Thyrsoidea reevesii Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (Samoa).

Gymnothorax reevesi Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 882 (copied).

Lycodontis reevesii Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 58 (copied); vol. 11, No. 5, 1931, p. 318 (reference).

2537

Lycodontis tigrina (Rüppell)

Muraena tigrina Rüppell, Atlas Reise nördl. Afrika, Fische, 1828, p. 118, pl. 30, fig. 2. Mohila. — Kaup, Archiv Naturges., 1856, pt. 1, p. 58 (reference); Cat. Apodal Fishes Brit. Mus., 1856, p. 69 (copied). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 108 (compiled).

Gymnothorax tigrina Bleeker, Reck. Faune Madagascar, pt. 4, 1856, p. 73 (reference).

2538

Lycodontis flavimarginata (Rüppell).

Muraena flavimarginata Rüppell, Atlas Reise nördl. Afrika, Fische, 1828, p. 119, pl. 30, fig. 3. Red Sea; Neue Wirbelth., Fische, 1835, p. 85 (reference). — Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 214 (Red Sea). ✓ — Guichenot,

Muraena flavimarginata Kaup, Archiv Naturgesch., 1856, pt. 1, p. 58. Bourbon (Paris Museum); Cat. Apodal Fish Brit. Mus., 1856, p. 67 (Bourbon). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 94 (reference).

Muraena flavomarginata Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 119 (Port Natal, Zanzibar, Seychelles, Norfolk Island, type of Muraena batuensis). — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (Navay); No. 7, 1879, p. 60 (Hawaii). — Günther, Rep.

2538

Lycodontis flavimarginata (Rüppell).

Muraena flavimarginata Rüppell, Atlas Reise nördl. Afrika, Fische, 1828, p. 119, pl. 30, fig. 3. Red Sea; Neue Wirbelth., Fische, 1835, p. 85 (reference). — Inc Cleland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 214 (Red Sea). ✓ — Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 30. —

Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 615 (compiled). — Day, Fishes of India, pt. 4, 1878, p. 671; Fauna British India, Fishes, vol. 1, 1889, p. 80.

Muraena flavomarginata Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 119 (Port Natal, Zanzibar, Seychelles, Norfolk Island, type of Muraena batuensis). — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (Savay); No. 7, 1879, p. 60 (Savaii). — Günther, Rep.

Voy. Challenger, vol. 1, 1880, p. 61 (Honolulu). — Pöhl, Cat. mus. Godeffroy, ho. 9, 1884, p. 9 (Hawaii). — Boulenger, Ann. mag. hat. Hist., ser. 6, vol. 20, 1897, p. 374 (Rotuma). — Günther, Journ. mus. Godeffroy, vol. 9, pt. 17, 1910, p. 417 (Hawaiian Islands).

Muraena (Gymnothorax) flavimarginata Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 374 (Patjitan, Ambon, Ceram, Humbolt Bay, types of Gymnothorax formosus, Gymnothorax javanicus, Gymnothorax rhodocephalus).

Thaerodontis flavimarginata Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 217 (Red Sea).

2540

Gymnothorax flavimarginatus Bleeker, Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 95, pl. (32)176, fig. 2, pl. (34)178, fig. 3 (Batu, Sumatra, Java, Amboina); Arch. Neerland. Sci. Nat. Harlem, vol. 13, 1878, p. 38 (New Guinea). — Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, 1904, p. (Padang). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), pp. 99, 102, pl. 17 (Padang example; Honolulu, Hilo, Waikiki). —

Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 72 (Padang examples). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 303 (compiled). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 216 (Jeonja, Zamboanga, Baldbac).

2541

Gymnothorax flavomarginatus Waite, Austral. Mus. Records, vol. 5, 1903, p. 3 (Paanopa, Ocean Island, Gilberts). — Jordan and Seale, Bull. Bur. Fisher, vol. 25, 1905 (1906), p. 200 (Apia). — Seale, Occas. Pap. Bishop Mus., vol. 4, pt. 1, 1906, p. 9 (Tubuai, Austral Islands, Raiatea, Society Islands). — Jordan and Richardson, Bull. Bur. Fisher, vol. 27, 1907 (1908), p. 240 (Calayan).

Lycodontis flavimarginata Fowler, Bull. Bishop Mus., No. 22, 1925, p. 23 (Honolulu); No. 38, 1927, p. 6 (Honolulu).

2542

Lycodontis flavomarginata Fowler, Bull. Bishop Mus., No. 22, 1925, p. 31 (Samoa). — Fowler and Ball, Bull. Bishop Mus., No. 26, 1925, p. 6 (Laysan, Wake Island). — Fowler, Bull. Bishop Mus., No. 38, 1927, p. 6 (Honolulu); Mem. Bishop Mus., vol. 10, 1928, p. 55, pl. 2C (Honolulu, Wake Island, Laysan, Tubuai, Raiatea, Rarotonga, Samoa, Hawaii, Society Islands, Apiang, types of Gymnothorax thalassoperus); Mem., vol. 11, No. 5, 1931, p. 317 (Honolulu); Proc. U. S. Nat. Mus., vol. 81, art. 8, 1932, p. 2 (Niuafoou).

? Muraenophis grisea Lacépède, Hist. Nat. Poiss., vol. 5, 1801, pp. 629, 642, 644. No type locality (evidently New Britain intended).

Strophidon grisea Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 214 (New Britain).

Thyrsoidea grisea Kaup, Archiv Naturges., 1856, pt. 1, p. 64 (Djedda, Mauritius, Bourbon); Cat. Apodal Fish Brit. Mus., 1856, p. 92, pl. 13, fig. 6 (head) (type, Djedda, Mauritius). — Gnichenot, Notes Ile Réunion, vol. 2, 1862, p. 30.

Echidna grisea Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1923, p. 37 (Madagascar).

? Muraena geometrica Rüppell, Atlas Reise Nördl. Afrika, Fische, 1828, p. 118, pl. 30, fig. 1. Massaua, Red Sea. — Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 617 (types; type of Muraena bilineata). — Borlieri, Ann. Mus. Civ. Stor. Nat. Genova, vol. 41, 1904, p. 219

(Dissei, Red Sea).

Dalophis geometrica Ine Clelland, Calcutta Journ. Nat. Hist, vol. 5, 1845, p. 213 (Red Sea).

? Muraena bilineata Rüppell, Neue Wirbelth., Fische, 1838, p. 84. Djedda.

Muraena pratbernon Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 84. Darnley Island.

Muraena batuensis Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 12, 1856, p. (231) 241. Batu Islands.

Gymnothorax batuensis Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 22 (Apia); Copeia, No. 112, Nov. 20, 1922, p. 82 (Hawaii).

25745

Muraena mauritiana Kaup, Archiv Naturges., 1856, pt. 1, p. 58. Bourbon; Mauritius (Paris Museum; no description or figure); Cat. Apodal Fish Brit. Mus., 1856, p. 65 (Mauritius; Bourbon). — Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 30. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 94 (reference).

Gymnothorax mauritianus Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Sauvage, Hist. Nat. Madagascar, Poiss., 1891, p. 502, pl. 49c, fig. 2 (type).

Muraena javanica Bleeker, Natuurk. Tydschr. Nederl. Indië, vol. 19, 1859, p. (332) 347. Patjitan, Java. — Klunzinger, Verhandel. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 626 (Red Sea).

Gymnothorax javanicus Bleeker, Atlas Ichth. Ind. Neêrl., vol. 4, 1864, p. 95, pl. (35) 179, fig. 2 (type). — Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 26 (Kandavu). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 200 (Apia).

Gymnothorax rhodocephalus Bleeker, Nederl. Tydschr. Dierk., vol. 2, 1864, p. 50. Amboina. — Seale, Occas. Pap. Bishop Mus., vol. 6, no. 1, 1906, p. 6 (Rarotonga, Cook Islands).

Gymnothorax formosus Bleeker, Nederl. Tijdschr. Dierk., vol. 2, 1864, p. 51. Wahai, Ceram; Atlas Ichth. Ind. Neêrl., vol. 4, 1864, p. 94, pl. (30) 174, fig. 1 (type).

Muraena formosa Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 111 (type; type of Gymnothorax rhodocephalus). — Waite, Mem. Austral. Mus., no. 3, 1897, p. 195 (Funafuti).

Gymnothorax favagineus (not Schneider) Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 26 (Samoa). — Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 7 (Fate, New Hebrides). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 199 (Pago Pago).

Gymnothorax griseobadius Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 26 (Savay).

Gymnothorax buroensis (not Bleeker) Schmeltz, Cat. Mus. Godeffroy, no. 5, 1874, p. 38 (Samoa). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 200 (Apia; Kusaie).

2548

Muraena buroensis Waite, Mem. Austral. Mus., No. 3, 1897, p. 196 (Funafuti, Ellice Islands).

? Muraena mauritiana Bleeker, Arch. Néerl. Sci. Nat. Harlem, vol. 13, 1878, p. 38 (New Guinea).

Gymnothorax thalassopterus Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 427, pl. 2. Honolulu. — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (Honolulu). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 27, 1904, p. 942 (Honolulu).

Depth 16 1/3 to 18; head 8 2/3 to 8 7/8, 3 1/2 to 3 7/8 to vent, width 2 2/3 to 4; combined head and trunk 1 to 1 1/10 in tail. Snout 5 2/3 to 6 in head; eye 8 1/2 to 10, 1 2/5 to 1 3/4 in snout, 1 to 1 1/5 in interorbital; mouth cleft extends 1 to 1 1/2 eye diameters behind eye, length 2 1/4 to 3 1/8 in head; teeth uniserial in jaws, with inner medial series of 1 to 3 small ones in maxillary; vomerine teeth irregularly uniserial or biserial; premaxillary with medial row of 2 or

3 fang like teeth with surrounding loop of .8 or 9 rather long teeth though shorter than maxillaries; interorbital 6 to 8 2/3, convex. Gill opening equals eye.

Dorsal origin about last fourth of postrictal space or over gill opening, fin rather high, much more to than anal.

Yellowish to brown, with crowded dark brown spots, ill defined and usually obscure. When formed into blotches of moderate size often yellowish ground color prominent. Rictus sometimes with dark blotch. Larger blackish blotch or border

alway around gill opening.
Sometimes dorsal and anal with
light or yellowish border.

Red Sea, Zanzibar, Natal,
Bourbon, Mauritius, Madagascar,
Seychelles, India, East Indies,
Philippines, Formosa, Queenland,
Melanesia, Micronesia, Polynesia,
Hawaii.

2552

8173. Alibijaban Island, Ragay Gulf, Luzon. March 6, 1909. Length 1394 mm.

9320. Cebu market. August 17, 1909. Length 958 mm.

9379. Cebu market. August 31, 1909. Length 643 mm.

6795. Malanipa Island, east of Zamboanga. September 8, 1909. Length 1914 mm.

23007. Pilas Island. September 12, 1909. Length 209 mm.

A796. Zamboanga market. October 6, 1909. Length 806 mm.

A1617. Naha, Riu Kiu. February 7, 1910. Length 760 mm.

2553

Lycodontis kidako (Schlegel)

Muraena kidako Schlegel, Fauna Japonica, Poiss., pts. 10-14, 1846, p. 266, pl. 117, Bay of Nagasaki. — Bleeker, Verhand. Batavia. Genoots. (Nat. Ichth. Japan), vol. 25, 1852, p. 20 (reference). — Brevoort, Narr. Exped. China Japan, Perry, vol. 2, 1856, p. 282, pl. 11, fig. 1 (Simoda).

Gymnothorax kidako Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 881 (Tokyo). — Franz, Abhandl. Kon. Bayer. Akad. Wiss., Suppl. Band 1, 1910, p. 16 (Aburatsubo, Yokohama). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 22 (Tokyo). — Herre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 228 (Batan Island).

Lycodontis kidako Fowler and Ball, Bull. Bishop Mus., vol. 26, 1925, p. 6 (Hecker, French Frigates Shoal, Laysan). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 56 (Honolulu, Laysan, Hecker, French Frigates Shoal, type of Gymnothorax steindachneri).

2554

Muraena similis Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 83. Polynesia, Red Sea, Japan. — Bleeker, Verh. Batavia. Genoots. (Nat. Ichth. Bengal.), vol. 25, 1853, p. 78 (reference). — Kaup, Archiv Naturges., 1856, pt. 1, p. 58 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 63 (copied).

Muraena nubila (not Richardson) Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 117 (Japan, Formosa).

Muraena flavomarginata (not Rüppell) Günther, Rep. Voy. Challenger, vol. 1, 1880, p. 61 (Honolulu). — Steindachner, Denkss. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 70, 1901, p. 514, pl. 6, fig. 3 (Laysan).

2555

Gymnothorax steindachneri Jordan and Evermann, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 166. Honolulu. — Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 426 (Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (Honolulu). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 27, 1904, p. 942 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 101, fig. 28 (Honolulu).

Muraena steindachneri Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 417 (Hawaiian Islands).

2556

Lycodontis mieroszewskii (Steindachner)

Muraena mieroszewskii Steindachner,

Ann. Naturhist. Hofmus. Wien, vol. 2,

1898, p. 222. Kobe; Hiago; Nagasaki.

Gymnothorax mieroszewskii Jordan and

Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901,

p. 882 (copied).

2557

Lycodontis chlamydata (Snyder)

Gymnothorax chlamydatus Snyder,

Proc. U. S. Nat. Mus., vol. 35, 1910, p. 94.

Naha, Riu Kiu; vol. 42, 1912, p. 493,

pl. 62, fig. 1 (types).

2556

Lycodontis ruppelli (nec Clelland)

Galophis ruppelliae nec Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 213 (on Rüppell).

Muraena ruppellii Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 104 (Moluccas; Borneo). — Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 615 (type of Muraena umbrostigma). — Day, Fishes of India, pt. 4, 1878, p. 669. — Günther, Ann. & Mag. Nat. Hist. 17 1910 p. 9. — Steindachner, Abhandl. Senckenberg. Nat. Gesell., vol. 25, 1901, p. 458.

Muraena rüppellii Károli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 184 (Ceylon).

Muraena ruppellii Day, Fauna British India, Fishes, vol. 1, 1889, p. 77.

Muraena ruppelliae Bartlett, Sarawak Gazette, vol. 26, no. 368, 1896 (reference).

2558

Lycodontis ruppelli (Mc Clelland)

Calophis ruppelliae Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 213 (on Rüppell).

Muraena ruppellii Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 104 (Moluccas; Borneo). — Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 615 (type of Muraena umbrostigma). — Day, Fishes of India, pt. 4, 1878, p. 669. — Günther, Journ. Mus. Godeffroy, vol. 2, pt. 17, 1910, p. 412 (Ponapé, Samoa, Kandavu).

Muraena rüppellii Károli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 184 (Ceylon).

Muraena ruepellii Day, Fauna British India, Fishes, vol. 1, 1889, p. 77.

Muraena ruppelliae Bartlett, Sarawak Gazette, vol. 26, No. 368, 1896 (reference).

Muraena (Gymnothorax) rüppelli Weber and Beaufort, Fishes Indo-Austral. Archipelago, vol. 3, 1916, p. 372 (Humboldt Bay and German New Guinea; Rotti; B Kleber's specimens).

Gymnothorax rupelliae Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 247 (Rangiroa, Paumotus).

Lycodontis rüppelli Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 55 (Apiang; Rangiroa); vol. 11, no. 5, 1931, p. 317 (reference); Proc. U. S. Nat. Mus., vol. 81, art. 8, 1932, p. 3 (Hinafoou).

Muraenophis colubrina (not Boddaert) Lacépède, Hist. Nat. Poiss., vol. 5, 1803, pp. 627, 641, pl. 19, fig. 1. New Britain; Amboina.

Muraena colubrina Richardson, Voy. Erebus and Terror, Ichth., 1844–48, p. 88, pl. 19, fig. 1 (New Britain, Amboina, Polynesia).

Thyrsoidea colubrina Kaup, Archiv Naturgs., 1856, pt. 1, p. 61 (Society Islands); Cat. Apodal Fish Brit. Mus., 1856, p. 84 (Society Islands).

2560

Muraena reticulata (not Bloch Ruppell, Atlas Reise nördl. Afrika, Fische, 1828, p. 117 (part). — Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 82 (Indian Ocean; Borneo).

Gymnothorax reticulatus Schmeltz, Cat. Mus. Godeffroy, no. 3, 1866, p. 12 (Samoa); no. 4, 1869, p. 126 (Samoa); no. 5, 1874, p. 38 (Kandavu).

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Muraena fasciata (Solander) Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 88. Society Islands (name in synonymy).

Muraena vittata (Solander) Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 89. Society Islands (name in synonymy).

Java, Amboina, Ceram, Ternate, Timor, Flores).

Muraena reticularis Steindachner, Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1423 (Upolu).

Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (Kandavu). — Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (Kandavu). —

2560

Muraena reticulata (not Bloch) Ruppell, Atlas Reise nördl. Afrika, Fische, 1828, p. 117 (part). — Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 82 (Indian Ocean; Borneo).

Gymnothorax reticulatus Schmeltz, Cat. Mus. Godeffroy, no. 3, 1866, p. 12 (Samoa); no. 4, 1869, p. 26 (Samoa); no. 5, 1874, p. 38 (Kandavu).

Gymnothorax reticularis (not Bloch) Bleeker, Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 98, pl. (33) 177, fig. 1, pl. (39) 183, fig. 2, pl. (37) 181, fig. 4 (Java, Cocos, Sumatra, Batu, Borneo, Celebes, Buro, Amboina, Ceram, Ternate, Timor, Flores).

Muraena reticularis Steindachner, Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1423 (Upolu).

Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (Kandavu). — Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (Kandavu). —

2561

Muraena bicolor (Reinwhardt), Bleeker, Atlas Ichth. Ind. Néerl, vol. 4, 1864, p. 99 (name in synonymy).

Depth 19; head 7 1/3, 3 1/4 to vent, width 4 in its length; combined head and trunk 1 1/4 in tail. Snout 5 1/2 in head; eye 8, 1 1/3 in snout, little greater than interorbital; mouth cleft extends 3/4 eye diameter behind eye, length 2 2/3 in head; teeth uniserial in jaws, anteriorly largest and inner medial maxillary series of 2 or 3 teeth; 3 large teeth in medial row of premaxillary surrounded by loop of 10 or 11 smaller though larger than maxillary series;

vomerine series small, unserial;
interorbital 7 1/2, low, convex. Gill
opening about 4/5 of eye.

Dorsal origin midway in
postorbital space, fin much higher
than anal.

Whitish, with 17 black cross
bands, each slightly narrower
than pale interspaces. Black cross
bands more or less expanding below
so those on trunk more or less
connected medially, inclusive also
of first one on anal fin. Iris

2564

gray. Red Sea, India, Ceylon, Andamans, East Indies, Micronesia, Melanesia, Polynesia.

22364. Basa Reef, Gulf of Boni, Celebes. December 17, 1909. Length 121 mm. Agrees with Bleeker's figure of Gymnothorax reticularis.

2565

Lycodontis petelli (Bleeker)

Muraena petelli Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 11, 1856, p. (84) 84. Melang, Java. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 105 (type; Mauritius). — Peters, Monatsber. Akad. Wiss. Berlin, 1876, p. 446 (Mauritius). — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 59 (Samoa). — Boulenger, Ann. Mag. Nat. Hist., ser. 6, vol. 20, 1897, p. 374 (Rotuma). — (Regan) Bedot, Rev. Suisse Zool., vol. 17, 1909, p. 169 (Amboina). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 412 (Samoa; Rotuma).

Muraena (Gymnothorax) petelli Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 372 (Bleeker's specimens).

Gymnothorax petelli Bleeker, Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 99, pl. (32) 176, fig. 1 (Java; Amboina). — Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 26 (Savay). — Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 40 (South Sea). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 100, fig. 27 (Honolulu; Samoa). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 197 (Pago Pago; Apia). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 240 (Calayan).

Lycodontis petelli Fowler and Ball, Bull. Bishop Mus., No. 25, 1925, p. 6 (Wake Island). — Fowler, Bull. Bishop Mus., No. 28, 1927, p. 6 (Tongareva, Baker Island, Honolulu); Mem. Bishop Mus., vol. 10, 1928, p. 54 (Honolulu, Wake Island, Samoa, Apiang, types of *Gymnothorax leucaeme* and *Gymnothorax waialuae*); vol. 11, No. 5, 1931, p. 317 (reference).

2567

Muraena interrupta Kaup, Archiv Naturges., 1856, pt. 1, p. 58. Red Sea (name only); Cat. Apodal Fish Brit. Mus., 1856, p. 67, pl. 10, fig. 51 (head) (Red Sea).

(Muraena nubila (part) Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 81 (Mauritius).

Gymnothorax leucacme Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 427, fig. 7. Honolulu. — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518, pl. 6, fig. 1 (Honolulu).

Gymnothorax waialuae Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 520, pl. 6, fig. 11. Waialua Bay, Oahu. — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 97, pl. 13, fig. 1 (type).

25-66

Depth 16 3/4 to 17 1/3; head 8 to 9 1/3, 4 1/2 to vent, width 3 1/5? to 3 3/5 in its length; combined head and trunk 1 1/3 in tail. Snout 4 to 4 3/4 in head; eye 8 to 8 1/3, 1 2/3 to 2 in snout, equals interorbital; mouth cleft extends eye diameter behind eye, length 2 to 2 1/6 in head; teeth uniserial in jaws and on vomer, with inner medial maxillary row of 3 depressible ones; row of 3 large medial fangs on premaxillary, with 8 rather large teeth forming surrounding

loup though little smaller than medial fangs & larger than maxillary teeth; interorbital 7½ to 8½, low, slightly convex. Gill opening equals eye.

dorsal origin median in postrictal space, fin high or much higher than low anal and very small caudal.

Light brown with 18 to 21 broad dark cross bands, usually wider than interspaces, incomplete on belly. Variably dark spot in mouth pale intervals along dorsal and sometimes on anal. Iris gray.

2570

Red Sea, Mauritius, East Indies, Philippines, Rui Kui, Melanesia, Polynesia, Hawaii.

11111. Mahinog, Camiguin Island. August 2, 1909. Length 406 mm.

15643. Sablayan, Mindoro. December 13, 1908. Length 375 mm.

2571

Lycodontis punctato-fasciata (Bleeker)
Gymnothorax punctato-fasciatus Bleeker,
Nederl. Tijdschr. Dierk., vol. 1, 1863, p. 167
(on Muraena catenata). — Jordan and Seale,
Proc. U. S. Nat. Mus., vol. 28, 1907, p. 772
(Negros). — Herre, Philippine Journ.
Sci., vol. 23, No. 2, Aug. 1923, p. 215
(Cagayan de Misamis and Cebu).
Gymnothorax punctatofasciatus Bleeker,
Atlas Ichth. Ind. Neêrland, vol. 4, 1864, p.
99(31) 175, fig. 4 (Amboina, Buro, Ceram).

— Tanaka, Figs. descr. Fishes of Japan,
vol. 12, July 31, 1913, p. 212, figs. 216 &
218 (Keelung, Formosa).
(type, [illegible]). —
Espan. Hist. Nat. Madrid, vol. 14, 1885,

2571

Lycodontis punctato-fasciata (Bleeker Gymnothorax punctato-fasciatus Bleeker, Nederland. Tijdschr. Dierk., vol. 1, 1863, p. 167 (on Muraena catenata). — Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, 1907, p. 772 (Negros). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 215 (Cagayan de Misamis and Cebu).

Gymnothorax punctatofasciatus Bleeker, Atlas Ichth. Ind. Néerland, vol. 4, 1864, p. 99(31) 175, fig. 4 (Amboina, Buro, Ceram).

→ Muraena punctato-fasciata Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 106 (type; Amboina). — Gorgoza, Anal. Soc. Españ. Hist. Nat. Madrid, vol. 14, 1885,

p. 74 (Manilla).

Muraena punctatofasciata Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Amboina River). — Day, Fishes of India, pt. 4, 1878, p. 669, pl. 169, fig. 4 (Madras); Fauna British India, Fishes, vol. 1, 1889, p. 78.

Muroena punctato-fasciata Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 591 (Luzon, Manila Bay, Cebu).

Muraena catenata (not Bloch) Bleeker, Act. Soc. Sci. Ind. Neerl. (and Amboyna), vol. 1, 1856, p. 66 (Amboina).

Muraena (Gymnothorax) punctatofasciata Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 371 (locality unknown).

depth 2 4 7/8 to 3 1 2/3; head 9 to 9 1/4, 3 7/8 to 4 to vent, width 4 1/5 to 4 1/2 its length; combined head and trunk 1 1/3 to 1 2/5 in tail. Snout 6 1/5 to 7 1/4 in head; eye 9 to 10 3/4, 1 1/2 to 1 3/4 in snout, 1 1/4 to 1 1/3 in interorbital; mouth cleft extends 1 2/5 to 1 1/2 eye diameters behind eye, length 2 1/2 to 3 in head; teeth uniserial in jaws and on vomer, in young inner row of 2 or 3 medial maxillary teeth; 2 or 3 large fangs in row on premaxillary, surrounded

by 10 or a dozen large teeth than in maxillaries, also first 6 larger than other mandibulars; interorbital 7½ to 9½, low, only very slightly convex. Gill opening subequal with eye.

Dorsal origin at last ⅓ to ⅖ in postrictal, fin higher than anal.

Light brown, paler below, with 30 to 40 variable or irregular darks to blackish brown cross bands, sometimes forked, extending on fins, and wider or narrower than pale

interspaces. Some or all may be complete, encircle body or even appear as broken blotches. Within pale interspaces often numerous scattered variable small spots or dots, mostly inconspicuous on account of their small size and crowded appearance, not extending on lower surface of body.

Zanzibar, India, East Indies, Philippines, Formosa. A handsome species, attractively variegated with dark crossbands and fine or small dots.

21776, 21777. Cebu market. March 20, 1909. Length 208 to 227 mm.

22993, 22994. Cebu market. March 22, 1909. Length 320 to 370 mm.

21753. Cebu market. March 28, 1909. Length 313 mm.

5358, 18225, 18226, 18228. Cebu market. April 5, 1908. Length 316 to 333 mm.

10533. Cebu market. May 22, 1908. Length 270 mm.

6463. Cebu market. August 13, 1909. Length 225 mm.

10530. Cebu market. August 17, 1909. Length 330 mm.

10958. Cebu market. August 25, 1909. Length 250 mm.

2577

8149 to 8151. Cebu market. August 29, 1909. Length 210 to 365 mm.

D. 5253. Liniao Point, N. 22° E., 1.5 miles (N. 7°4'48" E. 125°39'38"), Gulf of Davao. In 28 fathoms. May 18, 1908. Length 64 to 134 mm. 4 examples.

12530. Tilig, Lubang Island. July 14, 1908. Length 388 mm.

2578

Lycodontis woodwardi (McCulloch)

Gymnothorax woodwardi McCulloch, Records Western Austral. Mus., vol. 1, 1912, near Fremantle, Houtmans Abrolhos and p. 80, fig. 1, Pelsart Island, Western Australia.

Muraena nubila (part) Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 81 (Houtmans Abrolhos).

Muraena richardsoni (not Bleeker) Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, 118 (Richardson's material).

Gymnothorax punctatofasciatus (not Bleeker) Waite, Records Austral. Mus., vol. 6, 1905, p. 58.

depth 18 3/5; head 8, 3 2/3 to vent; combined head and trunk 1 1/4 in tail. Snout 5 1/2 in head; eye 9 1/2, 1 2/3 in snout, almost equals interorbital; mouth cleft extends 1 3/4 eye diameters behind eye, length 2 1/10 in head; teeth uniserial, upper small anteriorly, then large and decreasing again backwards; young with 2 large inner medial teeth on each maxillary; 1 or 2 large median depressible premaxillary fangs; small uniserial vomerine teeth mostly rounded;

Gill opening about 3/4 of eye.

Dorsal origin midway in postorbital space, fin little higher than anal.

Light brown, darker posteriorly, with wide meshed network of dark lines on upper half of body. Dark line near back begins with dorsal and follows it until lost on tail, little distinct in young. Some black lines extend from behind mouth toward gill opening, head otherwise plain. Anteriorly dorsal and anal marbled like body, posteriorly very dark with whitish margins. Length 325 to 720 mm.

(McCulloch.)

Western Australia.

2581

Lycodontis leucostigma (Jordan and Richardson)

Gymnothorax leucostigma Jordan and Richardson, Mem. Carnegie Mus., vol. 4, no. 4, 1911, p. 174, pl. 68. Takao, Formosa.

2562

Lycodontis punctata (Schneider)

Gymnothorax punctatus Schneider, Syst. Ichth. Bloch, 1801, p. 526. Tranquebar.

Muraena punctata Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 83 (Indian Ocean). — Bleeker, Verh. Batavia Genootsch. (Nat. Ichth. Bengal), vol. 25, 1853, p. 78 (reference). — Kaup, Archiv Naturges., 1856, pt. 1, p. 58 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 64 (compiled). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 102 (Madras). — Day, Fishes of India, pt. 4, 1878, p. 669, pl. 173, fig. 1; Fauna British India,

2583

Fishes, vol. 1, 1889, p. 77. — Deraniyagala, Ceylon Administrat. Rep., 1923, p.

F 15.

Lycodontis tile (Buchanan-Hamilton

Muraenophis tile Buchanan-Hamilton,

Fishes of Ganges, 1822, pp. 18, 363.
Ganges estuaries near Calcutta.

Muraena tile Cantor, Journ. Asiatic Soc.
Bengal, vol. 18, pt. 2, 1849, p. 1313 (compiled).
— Bleeker, Verh. Batavia. Genootsch.
(Nal. Ichth. Bengal), vol. 25, 1853, pp.
(78) 159 (Calcutta). — Günther, Cat.
Fishes Brit. Mus., vol. 8, 1870, p. 112
(Calcutta; types of Muraena vermiculata
and Muraena gracilis, East Indies). —
Day, Fishes of India, vol. 4, 1878, p. 668,
pl. 170, fig. 4; Fauna British India,
Fishes, vol. 1, 1889, p. 76, fig. 31. — Boulenger,
Proc. Zool. Soc. London, 1890, p. 40 (Deli,
Sumatra). — (Regan) Bedot, Rev. Suisse
Zool., vol. 17, 1909, p. 169 (Amboina).

Muraena (Gymnothorax) tile Weber and
Beaufort, Fishes Indo Austral. Archipelago,
vol. 3, 1913, p. 370, fig. 176 (Bleeker's
example).

7585

Thyrsoidea tile Kaup, Archive Naturges., 1856, pt. 1, p. 65 (compiled); Cat. Fishes Brit. Mus., 1856, p. 93, pl. 13, fig. 66 (head) (compiled). — Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 30.

Gymnothorax tile Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 97, pl. (34) 178, fig. 1 (Sumatra, Singapore, Banka, Borneo, Bengal). — Kner, Reise Novara, Fische, 1865, p. 385 (no locality). — Day, Fishes of Malabar, 1865, p. 249 (reference). — Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Hebre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 211 (copied). — Fowler, Occas. Pap. Bishop Mus., vol. 8, no. 7, 1923, p. 375 (Honolulu).

Echidna tile Peters, Monatsber. Akad. Wiss. Berlin, 1868, p. 275 (Lanang, Samar).

Lycodontis tile Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 54, pl. 2 B (Honolulu).

Lycodontis literata mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, pl. 7, fig. 2. Bengal, Calcutta market.

2586

Strophidon literata Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 215 (Bengal).

Muraena literata Bleeker, Verhand. Batavia. Genootsch. (Nat. Ichth. Bengal), vol. 25, 1853, p. 78 (reference).

Lycodontis punctata (not Schneider) Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 187, pl. 7, fig. 3. Bengal, vicinity Calcutta.

Muraena punctata Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 83 (Indian Ocean). — Bleeker, Verh. Batavia. Genoots. (Muraen.), vol. , 185 , p. 42.

Strophidon punctata Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 215 (Bengal).

Strophidon maculata Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, pp. 203, 215, pl. 8, fig. 1. Bengal.

Muraena maculata Bleeker, Nederl. Arch. Dierk., vol. 2, 1865, p. 31 (Manila Bay).

Muraena vermiculata Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 92. India. — Bleeker, Verhand. Batavia. Genootsch. (Hal. Ichth. Bengal), vol. 25, 1853, p. 78 (reference).

Muraena gracilis Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 92. India. — Bleeker, Verhand. Batavia. Genootsch. (Hal. Ichth. Bengal), vol. 25, 1853, p. 78 (reference).

Lycodontis sathete (Buchanan-Hamilton)

Muraenophis sathete Buchanan-Hamilton, Fishes of Ganges, 1822, pp. 17, 363. Ganges estuaries near Calcutta.

Muraena sathete Richardson, Ichth. Voy. Erebus and Terror, 1844-48, p. 91 (India). — Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, 1849, p. 1313 (fresh waters and seas of Pinang). — Bleeker, Verhand. Batavia. Genootsch. (Nat. Ichth. Bengal), vol. 25, 1853, p. 78 (reference). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 126 (no locality). — Day, Fishes of India, pt. 4, 1876, p. 668; Fauna British India, Fishes, vol. 1, 1889, p. 77.

Thyrsoidea sathete Kaup, Archiv Naturges., 1856, pt. 1, p. 62 (compiled); Cat. Apodal Fish Brit. Mus., 1856, p. 86, pl. 12, fig. 63 (head) (India).

Lycodontis longicaudata nec Cleland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 187, pl. 8, fig. 2. Bengal (on Buchanan-Hamilton drawing).

2589

Strophidon longicandata Mc Clelland, Calcutta Journ Nat. Hist., vol. 5, 1845, p. 215 (Bengal; error).

2590

Lycodontis polyuranodon (Bleeker)

Muraena polyuranodon Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 5, 1853, p. 248. Cram. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 114 (type). — Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Rinduhati upper Benculen). — Boulenger, Ann. Mag. Nat. Hist., ser. 6, vol. 15, 1895, p. 187 (Palawan). — Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (Viti Islands). — Günther, Rep. Voy. Challenger, vol. 1, pt. 6, 1880, p. 36 (Ovalau); Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 421 (Ovalau, in fresh water).

Muraena (Gymnothorax) polyuranodon Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 369, fig. 185 (dentition) (Ambon; Humboldt Bay, New Guinea).

Gymnothorax polyuranodon Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 89, pl. (30) 174, fig. 2 (Java, Sumatra, Borneo, Celebes, Buro, Amboina, Ceram); Verslagen Kon. Akad. Wet. Amsterdam, ser. 2, vol. 2, 1868, p. 301 (Waigiu). — Schmeltz, Cat. Mus.

Godeffroy, No. 4, 1869, p. 26 (Kandavu). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 214 (Laub River).

Lycodontis polyuranodon Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 54 (Eban Island); vol. 11, No. 5, 1931, p. 317 (reference).

Polyuranodon kuhli Kaup, Archiv Naturges., 1856, pt. 1, p. 65 (on Bleeker).

Polyuranodon kuhlii Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 96 (compiled).

Muraenoblenna tigrina (not Lesson) Kaup, Archiv Naturges., 1856, pt. 1, p. 66 (part; Moluccas).

Muraeno-blenna tigrina Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 98 (Moluccas).

2592

Lycodontis meleagris (Shaw and Nodder)

Muraena meleagris Shaw and Nodder, Naturalist's Miscellany, vol. 7, 1795, pl. 220. Southern Ocean. — Shaw, General Zool., vol. 4, p. 1, 180 , p. 32 ( ). — Richardson, Voy. Erebus and Terror, Ichth., 1844–48, p. 93 (Southern Ocean). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 100 (type, Zanzibar, Mauritius, Java, Fiji, Seychelles). — Schmeltz, Cat. Mus. Godeffroy, no. 5, 1874, p. 38 (Tonga). — Day, Fishes of India, pt. 4, 1878, p. 668. — Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 59 (Tonga Islands). — Károli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 185 (Rarangoon). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 76. — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 410 (Samoa, Hawaii, Society Islands, Fiji, Ponape, Friendly Islands, Carolines, Tahiti, Paumotus). — Gilchrist and Thompson, Ann. South African Mus., vol. 11, pt. 2, 1911, p. 53 (Natal).

Muraena (Gymnothorax) meleagris Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 367 (Simalur; Paternoster Islands; Karakelang Islands; Ambon; Solor).

Thyrsoidea meleagris Kaup, Archiv Naturges., 1856, pt. 1, p. 64 (Southern Ocean; British Museum); Cat. Apodal Fish Brit. Mus., 1856, p. 91 (compiled).

Gymnothorax meleagris Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 94 (Honolulu). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 107 (Apia). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 304 (compiled). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, 1922, p. 10 (Zamboanga). — Fowler, Copeia, No. 112, Nov. 20, 1922, p. 82 (Hawaii). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug.

1923, p. 213 (Cabalian).

Lycodontis meleagris Fowler and Ball, Bull. Bishop Mus., no. 26, 1925, p. 6 (Laysan, French Frigates Shoal, Lisianski, Ocean and Johnston Islands). — Fowler, Bull. Bishop Mus., no. 38, 1927, p. 6 (Palmyra, Washington, Fanning, Tongareva, Howland Islands); Mem. Bishop Mus., vol. 10, 1928, p. 53, pl. 2 A (Honolulu, Honomuni, French Frigates Shoal, Johnston, Laysan, Lisianski, Ocean, Nukuhiva, Tahiti, Tubuai, Guam, Fiji, Hawaii, Samoa, Easter, Apia, Society, Elton Islands, types of Gymnothorax tahitensis, Gymnothorax marquesensis, Gymnothorax ercodes, Gymnothorax leucoticus, Rhyssoidea eurosta, Lycodontis parvibranchialis); vol. 11, no. 5, 1931, p. 317 (Waikiki Reef; Honolulu); Proc. U. S. Nat. Mus., vol. 81, art. 8, 1932, p. 2 (Hinafoou).

2595

Muraena griseo-badia (not Richardson) Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 8, 1855, p. 325 (Batoe).

Gymnothorax griseo-badius Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 105, pl. (31) 175, fig. 2 (Sumatra, Nias, Batu, Bali, Sangi, Amboina, Buro).

Thyrsoidea chlorostigma Kaup, Archiv Naturges., 1856, pt. 1, p. 63. Seychelles; Cat. Apodal Fish Brit. Mus., 1856, p. 89 (type).

Gymnothorax chlorostigma Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 97, pl. (34) 178, fig. 2 (not 3) (type).

Muraena duivenbodei Bleeker, Nederl. Tijdschr. Nederl. Indië, vol. 10, 1856, p. (362) 385. Ternate. — Pellegrin, Bull. Mus. Hist. Nat. Paris, vol. 4, 1898, p. 228 (Mariannes).

Muraena afra (not Bloch) Weber, Zool. Forschungsr. Semon, vol. 5, 1895, p. 275.

2596

Lycodontis eurosta Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1900, p. 494, pl. 18, fig. 4 (type).

(Gymnothorax eurostus Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 92 (copied Abbott). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 21 (type).

Lycodontis parvibranchialis Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1900, p. 494, pl. 18, fig. 1. Hawaiian Islands.

Muraena laysana Steindachner, Anzeiger Akad. Wiss. Wien, Nr. 16, June 27, 1900, p. 177. Laysan; Denks. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 70, 1901, p. 515, pl. 6, figs. 1–2 (type).

2597

Muraena duivenbodii Günther, Cat. Fishes. Brit. Mus., vol. 8, 1870, p. 114 (type).

Gymnothorax duivenbodei Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 89, pl. (25) 169, fig. 1 (type).

Muraena buroensis Bleeker, Nederl. Tijdschr. Nederl. Indië, vol. 13, 1857, p. (57) 79. Kajeli, Buru. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 114 (type; Richardson example).

Gymnothorax buroënsis Bleeker, Atlas Ichth. Ind. Néerl. vol. 4, 1864, p. 90, pl. (46) 190, fig. 1 (Coxox, Buro, Amboina, Ceram).

Thyrsoidea eurosta Abbott, Proc. Acad. Natl. Sci. Philadelphia, 1860, p. 478. Hawaiian Islands.

Gymnothorax layardus Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 425, fig. 5 (Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (Honolulu; Hilo). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 27, 1904, p. 942 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 93, pl. 11, fig. 24 (Honolulu, Waikiki, Cocoanut Island, Hilo). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 21 (type of Lycodontis paraibranchialis).

Muraena nigra (not Risso) Seale, Occas. Pap. Bishop Mus., vol. 1, no. 3, 1900 (1901), p. 62 (Guam).

Gymnothorax leucoticticus Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 425, fig. 5. Honolulu. — Seale, Occas. Pap. Bishop Mus., vol. 1, no. 5, 1902, p. 15 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 96, fig. 25 (Honolulu).

2599

Gymnothorax ercodes Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 428, fig. 8. Honolulu. — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 95, fig. 24 (Honolulu).

Gymnothorax chlamgius Waite, Records Austral. Mus., vol. 5, 1903, p. 145, pl. 7, fig. ½. Lord Howe Island; vol. 5, pt. 3, 1904, p. 191 (reference). — Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 10 (Tubuai, Austral Islands).

Gymnothorax tahitensis Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 7, pl. (lower right fig.). Tahiti.

Gymnothorax marquesensis Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 10, fig. 1 (lower left fig.). Nukuhiva, Marquesas Islands.

2600

Lycodontis gilberti (Tanaka)

Gymnothorax gilberti Tanaka, Journ.
College Sci. Tokyo, vol. 23, 1908, p. 25,
pl. 1, fig. 1. Bonin Islands.

Gymnothorax dovii (not Günther)
Kendall and Goldsborough, Mem. Mus.
Comp. Zool., vol. 25, 1912, p. 82 (Cook
Bay, Easter Island).

Gymnothorax monochrous (not Bleeker)
Weber, Siboga Exped., vol. 57, Fische,
1913, p. 59 (Kailua ketgil Island). —
Beaufort, Bijdr. Dierk., pt. 19, 1913,
p. 106 (Ambon).

depth 12 1/2 to 17; head 7 to 7 3/5, 3 1/5 to 3 1/3 to vent, width 2 4/5 to 3 3/5 in its length; combined head and trunk 1 to 1 1/5 in tail. Snout 5 to 5 4/5 in head; eye 6 1/2 to 10 1/3, 1 to 2 in snout, 1 to 1 1/5 in interorbital; mouth cleft extends 1 to 2 eye diameters behind eye, length 2 to 2 1/8 in head; teeth biserial on maxillaries with inner row of 7 or 8 and in young third outer series of small teeth which soon lost; premaxillary with 2 or 3 large median fangs and outer loop of rather large

teeth; vomerine teeth uniserial or biserial, rather small; mandible teeth uniserial, with few larger inner teeth anteriorly; interorbital 6 1/5 to 7, low, depressed. Gill opening 3/4 to 7/8 of eye.

Dorsal origin midway to last third in postrictal space, fin little higher than anal.

Color very variable, usually brown - or even whitish base color. Often with very numerous crowded white or yellow small

spots and with or without black gill openings. Sometimes with small variable dark or even nearly black spots, which may even be more or less transversely arranged, appear as streaks, mottling or even reticulations. Dark or pale spots may be equally contrasted on the same individual. In young spots comparatively fewer. Sometimes coloration nearly uniform brown, of various shades.

2605

Zanzibar, Natal, Mauritius,
Seychelles, Burma, East Indies,
Philippines, Japan, Australia,
Melanesia, Micronesia, Polynesia,
Hawaii.

22991. Cebu market. March 22, 1909. Length 245 mm.

6126. Iloilo market, Panay. June 2, 1908. Length 983 mm. dried hard, poor specimen.

6352 [1903]. Iramucan Bay, Mindanao. August 8, 1909. Length 270 mm.

13208. Jolo Island. March 7, 1908. Length 220 mm.

1 example. Togas Point, Panay. February 4, 1908. Length 52 mm. Largely uniform blackish.

22334. River at Pasacao, Luzon. March 9, 1909. Length 180 mm!

1 example. Makassar, Celebes, tidepool. December 16, 1909. Length 67 mm.

2607

984 A.N.S.P. Hawaiian Islands.
Dr. J. K. Townsend. Length 344 mm.
Type of Thyrsoidea eurosta.

16483 A.N.S.P. Hawaiian Islands.
Length 118 mm. Type of Lycodontis
pardivibranchialis.

2608

Lycodontis stellifera (Richardson)

Muraena stellifer Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 86. Madagascar.

Muraena stellifera Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 101 (type).

Gymnothorax stellifer Bleeker, Nederl. Tijdschr. Dierk., vol. 1, 1863, p. 345 (Madagascar); Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference).

2609

Lycodontis callorhyncha (Günther)
Muraena callorhynchus Günther,
Cat. Fishes Brit. Mus., vol. 8, 1870,
p. 122. Freemantle, Western Australia.

Rabula callorhyncha McCulloch,
Australian Mus. Mem., vol. 5, pt. 1,
June 29, 1929, p. 71 (reference).

2610

Lycodontis schismatorhynchus (Bleeker)

Muraena schismatorhynchus Bleeker, Nat. Tijds. Nederl. Indië, vol. 4, 1853, p. 301. Benculen, Sumatra. — Kaup, Archiv Naturges., 1856, pt. 1, p. 57 (reference). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 127 (type; type of Muraena congeroides); Journ. Mus. Godeffroy, vol. 9, pt. , 1910, p. 410 (Sumatra).

Muraena schismatorhyncha Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 59 (compiled).

(Gymnothorax)

Muraena schismatorhyncha Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 366 (type of Eurymyctera crudelis; Java; Timor).

Gymnothorax schismatorhynchus Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 106, pl. (40) 184, fig. 1 (Sumatra, Java, Timor).

Lycodontis schismatorhynchus Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 53 (compiled).

Eurymyctera crudelis Kaup, Archiv Naturges., 1856, pt. 1, p. 59. Java; Cat. Apodal Fish Brit. Mus., 1856, p. 73, pl. 11, fig. 56 (head) (types).

Muraena net Thiolliere, Fauna Woodlark, 1857, p. 210. Woodlark Island.

Muraena congeroides Bleeker, Act. Soc. Sci. Ind. Néerl. (Sumatra 8), vol. 8, 1859, p. (12)87. Benculen, Sumatra.

Rhinamuraena critima Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 196, fig. 6. Pago Pago, Samoa.

Rhinechidna critima Barbour, Proc. Biol. Soc. Washington, vol. 21, 1908, p. 41 (type).

Feb. 29,

2612

Lycodontis prionodon (Ogilby)

Gymnothorax prionodon Ogilby, Proc. Linn. Soc. New South Wales, ser. 2, vol. 9, March 28, 1895, p. 720. Port Jackson. —
Mc Culloch, Austral. Mus. Mem., vol. 5, pt. 2, June 29, 1929, p. 74 (reference).

Lycodontis angusticaudata (Weber and Beaufort)

Muraena (Priodonophis) angusticaudata Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 389, fig. 388 (teeth). Near Supiore, Schouten Islands.

2614

Lycodontis moluccensis (Bleeker)

Priodonophis moluccensis Bleeker, Nederland

Tydschr. dierk., vol. 2, 1864, p. 48.

Amboyna; Atlas Ichth. Ind. Néerl.,

vol. 4, 1864, p. 108, pl. (43) 187, fig. 1 (type).

Muraena moluccensis Günther, Cat. Fishes

Brit. Mus., vol. 8, 1870, p. 126 (type). —

(Regan) Bedot, Rev. Suisse Zool., vol. 17, 1909,

p. 169 (Amboina).

Muraena (Priodonophis) moluccensis Weber

and Beaufort, Fishes Indo Austral.

Archipelago, vol. 3, 1916, p. 390 (type).

2615

Lycodontis monostigma (Regan)

Muraena monostigma Regan, Ann. Mag. Nat. Hist., ser. 8, vol. 4, 1909, p. 438. Tahiti; Raiatea. — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 409 (fig. of head) (type).

Lycodontis monostigma Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 59 (compiled).

2616

Lycodontis reticularis (Bloch)

Gymnothorax reticularis Bloch, Naturg. Ausland. Fische, vol. 9, 1795, p. 85. Tranquebar. — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 882 (Wakanoura; Misaki). — Jordan and Richardson, Mem. Carnegie Mus., vol. 4, No. 4, Aug. 28, 1909, p. 173 (Takao). — Franz, Abhandl. Kon. Bayer. Akad. Wiss., vol. 4, Suppl. Band 1, 1910, p. 16 (Aburatsubo).

Muraenophis reticularis Lacépède, Hist. Nat. Poiss., vol. 5, 1803, pp. 628, 642 (Tranquebar).

Thaerodontis reticularis Muc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 216 (Tranquebar).

Muraena reticularis Bleeker, Verh. Batavia. Genootsch. (Nat. Geneesk. Bengal), vol. 25, 1853, p. 78 (reference). — Günther, Cat. Fishes Brit. Mus., vol. 9, 1870, p. 105 (China). — Day, Fishes of India, pt. 4, 1878, p. 669. — Károli, Természetr. Füzetek, Budapest, vol. 5, 1881, p. 185 (Nagasaki). —

Steindachner and Döderlein, Denks. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 53, pt. 1, 1887, p. 361 (Koch Harbor, 40 fathoms). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 78. — Ishikawa and Matsmura, Prelim. Cat. Fishes Tokyo Mus., 1897, p. 5. — Deraniyagala, Ceylon Administrat. Rep., 1925, p. F15.

Muraena (Priodonophis) reticularis Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 388 (type of Muraena minor).

Priodonophis reticularis Bleeker, Nederl. Tijdschr. Dierk., vol. 4, 1871 (1872), p. 124 (Amoy); Verhand. Kön. Akad. Wet. Amsterdam (Poiss. Jap.), vol. 18, 1877 (1878), p. 26 (reference).

Lycodontis reticularis Fowler, Hong Kong Naturalist, vol. 2, No. 4, Nov. 1931, p. 290 (Hong Kong).

Gymnothorax reticulatus Bloch, Naturges. Ausland Fische, vol. 9, 1795, pl. 416.; Schneider, Syst. Ichth. Bloch, 1801, p. 528 (Coromandel).

Muraena reticulata Rüppell, Atlas Reise nördl. Afrika, Fische, 1828, p. 117 (Red Sea). — Richardson, Voy. Erebus and Terror, Ichth., 1844-48, pl. 82 (Borneo). — Kaup, Archiv Naturges., 1856, pt. 1, p. 57 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 60, pl. 9, fig. 49 (head) (Borneo).

Thaerodontis reticulata Mason, Burmah Nat. Resources, 1860, p. 702 (reference).

Muraena minor Schlegel, Fauna Japonica, Poiss., pts. 10-14, 1846, p. 269, pl. 115, fig. 2. Japan. — Bleeker, Verhand. Batavia. Genootsch. (Nat. Ichth. Jap.), vol. 25, 1853, p. 20 (reference); (Nat. Ichth. Jap.), vol. 26, 1857, pp. 6, 123 (Nagasaki); Act. Soc. Sci. Ind. Neerl., no. 3, vol. 3, 1857-58, p. 6 (Japan).

Priodontophis minor Kner, Reise Novara, Fische, 1865, p. 382 (no locality).

2619

Lycodontis mudivomer (Günther)

Muraena mudivomer Günther, Fishes of Zanzibar, 1866, p. 127, pl. 18. Zanzibar; Cat. Fishes Brit. Mus., vol. 8, 1870, p. 104 (type; adult).

Gymnothorax mudivomer Gilchrist and Thompson, Ann. South African Mus., vol. 11, No. 3, Oct. 24, 1912, p. 53 (Natal); Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 305 (compiled).

Lycodontis mudivomer Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 197 (Illovo River, Natal, 29 fathoms); Mem. Bishop Mus., vol. 10, 1928, p. 59 (Honolulu; types of Gymnothorax xanthostomus and Gymnothorax goldsboroughi).

2620

Gymnothorax goldsboroughii Jordan and Evermann, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 167. Honolulu. — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 100, fig. 26 (type).

Muraena goldsboroughii Günther, Journ. Mus. Godeffroy, vol. 2, pt. 17, 1910, p. 418 (Hawaiian Islands).

Gymnothorax xanthostomus Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 519, pl. 5, fig. 10. Honolulu.

Lycodontis mudivomer (Günther)

Muraena mudivomer Günther, Fishes of Zanzibar, 1866, p. 127, pl. 18. Zanzibar; Cat. Fishes Brit. Mus., vol. 8, 1870, p. 104 (type; adult). — Gilchrist and Thompson, Ann. South African Mus., vol. 11, no. 2, 1911, p. 53. (Natal).

Depth 12 7/8; head 9 1/4, 4 to vent, head width 2 4/5 in its length; combined head and trunk 1 1/4 in tail. Snout 5 1/4 in head; eye 10, 1 4/5 in snout, 1 1/2 in interorbital; mouth cleft extends 2 eye diameters beyond eye, length 2 1/8 in head; teeth in jaws uniserial, none on vomer and no medial fangs on premaxillary, largest medio-laterally; interorbital 8, broadly and slightly convex with median depression. Gill opening 1 1/5 in eye.

dorsal origin midway in postorbital space, fin high or much higher than anal.

Brown, with many pale small crowded pale or whitish irregular spots, only separated by reticulated lines on head and trunk, though on latter spots little larger and reticulations resulting more wide. On tail whitish lines still become coarser and define irregular broad dark cross bands, also reflected on vertical fins. Gill opening with narrow neutral dusky or black border. Iris pale or yellowish brown.

Zanzibar, Natal, Rui Kui, Hawaii. My example greatly resembles Günther's figure, which however

does not show any gill opening.
Günther also describes the "upper
jaw with a cluster of five or six
slightly curved teeth in front (the
hindermost being the longest)" and
also shows them on his plate, a
condition not present in my specimen.

A 1618. Naha, Riu Kiu. February 7, 1910.
Length 665 mm. Agrees with Günther's
plate except he does not show the
edge of the gill opening rather
narrowly blackish. Anal edge also
pale.

2624

Lycodontis picta (Ahl)

Muraena picta Ahl, Specimen. Ichth.

Ophichth. Thunberg, 1789, p. 8, pl., right fig. East India. — Günther, Fishes of Zanzibar, 1866, p. 384. — Peters,

Monatsber. Akad. Wiss. Berlin, 1868, p. (Samar). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 116 (Zanzibar, type of Muraena lita, East Indies, Sumatra, Amboina, Borneo, types of Muraena pfeifferi and Muraena siderea, Australia, Samoa, Fiji). — Martens,

Preuss. Exped. Ost-Indien, vol. 1, 1876, p. 406 (Amboin River; Buru). — Peters, Monatsber.

Akad. Wiss. Berlin, 1876 (1877), p. 850 (New Hannover). — Streets, Bull. U. S. Nat. Mus., No. 7, 1877, p. 93 (Palmyra Island). —

Day, Fishes of India, pt. 4, 1878, p. 672, pl.

172, fig. 4. — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (Samoa). — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 39 (Samoa). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 82. — Bartlett, Sarawak Gazette, vol. 26, No. 368, 1896, p. 180 (reference). — Ishikawa and Matsumura, Prelim. Cat. Fishes Mus. Tokyo, 1897, p. 5. — Pellegrin, Bull. Mus. Hist. Nat. Paris, vol. 4, 1898, p. 228 (Marianne). — Steindachner, Abhand. Senckenberg. Nat. Gesell., vol. 25, 1901, p. 457 ( ); Denks. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 71, pt. 1, 1901, p. 158 (Bal Hâf; Geschin). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 419 (Hawaiian Islands, Carolines, Guam, Marquesas, Fiji, New Lauenburg or Duke of York Island, Kingsmills, Samoa, Society Islands). — Weber, Siboga Expd., vol. 57, Fische, 1913, p. 59 (Hailus-kaetjil; Amaras Reef; Sanguisiapo; Beo; Lucipara;

Rotti).

Muraena picta Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 593 (Luzon, Cavite, Santa Cruz).

Muraena (Gymnothorax) picta Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 363, figs. 175, 180, 182, 183 (Wijnkoops Bay, Java; Reef de Bril, near Celebes; Sulu; Amboin; Humboldt Bay, New Guinea; Banda; Roma; Sumba; also Weber's material).

Gymnothorax pictus Schneider, Syst. Ichth. Bloch, 1801, p. 529 (on Ahl). — Bleeker, Atlas Ichth. Ind. Neerland, vol. 4, 1864, p. 87, pl. (26) 170, figs. 3-4, pl. (28) 172, fig. 3, pl. (29) 173, fig. 1, pl. (45) 189, fig. 3 (Sumatra, Java, Celebes, Ternate, Amboina, Ceram, Timor, New Guinea).

— Kner, Reise Novara, Fische, 1865, p. 384 (Australia). — Bleeker, Verslagen Kon. Akad. Wet. Amsterdam, ser. 2, vol. 2,

1868, p. 281 (Doreh, New Guinea). — Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 26 (Samoa). — Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 40 (South Sea). — Waite, Records Austral. Mus., vol. 5, 1903, p. 3 (Nauru, Pleasant Island, Marshalls).

— Garman, Bull. Mus. Comp. Zool., vol. 39, 1903, p. 239 (Suva and Nukulau, Fiji).

— Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (Honolulu; Puako Bay).

— Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 103, pl. 19 (Kailua; Honolulu). — Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, 1905, p. 772 (Negros); Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 198 (Apia). — Seale, Occas. Pap. Bishop Mus., vol. 4, No. 1, 1906, p. 6

(Shortland Island, Solomons, Nabutea, Paumotus, Mangareva, Gambier, Tahiti, Rarotonga, Cook Islands).—

Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 239 (Cagayancillo, Tawi-Tawi).—Jordan and Dickerson, Proc. U. S. Nat. Mus., vol. 34, 1908, p. 604 (Tutuila).—Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 246 (Amoy, Fakarava, Makemo, Takaroa, Rangiroa, Paumotus, Funafuti, Ellice Islands, Jaluit).—

Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 25 (Hawaiian Islands).—Fowler and Silvester, Marine Papers Carnegie Inst., 1922, p. 113 (Pago Pago).—Fowler, Copeia, No. 112, Nov. 20, 1922, p. 82 (Hawaii).

—Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 208, fig. 12 (teeth) (Calapan).—Whitley, Journ. Pan. Pac. Res. Inst., vol. 3, No. 1, Jan. March 1928, p. 11 (Santa Cruz Islands).

Gymnothorax picta Stead, Fishes of Australia, 1906, p. 44.

Lycodontis picta Fowler, Bull. Bishop Mus., No. 22, 1925, p. 5 (Guam); No. 38, 1927, p. 6 (Fanning, Christmas, Jarvis, Tongareva, Howland, Baker Islands, Honolulu). — Fowler and Ball, Bull. Bishop Mus., No. 26, 1925, p. 6 (Johnston and Wake Islands). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 51 (Honolulu, Makatea, Mangareva, Shortland, Marcus, Palmyra, Fanning, Johnston, Wake, Guam, type of Gymnothorax mutingi, Rangiroa, Mokemo, Kiribo, Tibei, Jaluit, Kapingamarangi, Society Islands, Hawaii, Apiang, Ascension, Ebon, Strong Islands); vol. 11, No. 5, 1931, p. 317 (Suva Point, Fiji).

Sideria picta Jordan, Evermann, Clark, Rep. U. S. Commissioner Fisher., 1928, pt. 2 (1930), p. 93 (reference).

Gymnothorax echidna Lacépède, Nat. Ges., vol. 4, 1794, p. 181. — Schneider, Syst. Ichth. Bloch, 1801, p. 526 (Otaheite, Tahiti).

Muraenophis pantherina Lacépède, Hist. Nat. Poiss., vol. 5, 1803, pp. 628, 642. "La collection hollandoise."

Muraena pantherina Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 214. (unknown).

Sidorea pantherina Kaup, Archiv Naturges., 1856, pt. 1, p. 59 (compiled).

Sidora pantherina Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 71 (Barnley Island; Diego Garcias; Moluccas).

Gymnothorax pantherinus Bleeker, Nederland Tijdschr. Dierk., vol. 1, 1863, p. 152.

Muraena variegata Quoy and Gaimard, Voy. Uranie, Zool., 1824, p. 246, pl. 32, fig. 1. (Guam; Coromandel. — Schmeltz, Cat. Mus. Godeffroy, No. 1, 1864, p. 10 (South Sea); No. 2, 1865, p. 19 (Uea, Wallis Island; South Sea); No. 4, 1869, p. 26 (Upolu).

Echidna variegata Lichtenstein, Descript. Animal., Forster, 1844, p. 181 (Huahine; Bola Bola; Tongatabu). — Schmeltz, Cat. Mus. Godeffroy, No. 3, 1866, p. 11 (Samoa); No. 4, 1869, p. 26 (Samoa). — Blleker, Arch. Neerl. Sci. Nat., vol. 13, 1878, p. 38 (New Guinea).

Muraenophis variegata Jouan, Mém. Soc. Sci. Nat. Cherbourg, Vol. 9, 1863, p. 183 (on Muraena Jouan, op. cit., vol. 8, 1861, p. 251, Port de France, New Caledonia).

Muraenophis variegata Jouan, Mém. Soc. Sci. Nat. Cherbourg, vol. 21, 1871-78, p. 333 (New Caledonia).

Poecilophis variegata Kner, Reise Novara, Fische, 1865, p. 381 (Tahiti).

Muraena lita Richardson, Voy. Erebus and Terror, 1844-48, p. 85. in Lucas. Seth.;

Gymnothorax litus Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 198 (Apia). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 239 (Cuyo, Cagayancillo).

Muraena sidorea Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 85, pl. 48, figs. 1-5. Western and Northern Australia. — Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, 1878, p. 396 (Port Jackson).

Muraena sidera Macleay, Proc. Linn. Soc. New South Wales, vol. 7, 1882, p. 594 (New Guinea).

Muraena atomaria (Volander) Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 86. Society Islands (name in synonymy).

Muraena erythroptera (Volander) Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 86. Society Islands (name in synonymy).

Muraena pfeifferi Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 5, 1853, p. (154) 173. Macassar.

Sidorea pfeifferi Kaup, Archiv Naturgesch., 1856, pt. 1, p. 59 (reference).

Sidera pfeifferi Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 70 (Ceram, Macassar).

Muraena nigrolineata Kaup, Archiv Naturgesch., 1856, pt. 1, p. 58. Marquesas Islands (Paris Museum; no description or figure); Cat. Apodal Fish Brit. Mus., 1856, p. 66. Marquesas Islands.

Muraena chrysops Kaup, Archiv Naturgesch., 1856, p. 58. Tahiti (Paris Museum; no description or figure); Cat. Apodal Fish Brit. Mus., 1856, p. 70. Tahiti.

Muraena polyophthalmus Bleeker, Act. Soc. Sci. Ind. Néerland, no. 4, vol. 3, 1857-58, p. (4) 5. Menado, Celebes. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 109 (type). — Regan, Ann. Natal Mus., 1908, p. 243.

Gymnothorax polyophthalmus Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 96, pl. (30) 174, fig. 3 (type). — Jordan and Seale, Bull. Bur. Fisheries, vol. 25, 1905 (1906), p. 199 (Apia; Kusaie). — Weber, Siboga Exped., vol. 57, Fische, 1913, p. 59 (Maratua Reef). — Gilchrist and Thompson, Ann. South African Mus., vol. 1, pt. 4, 1917, p. 305 (compiled).

Muraena picta var. albicans Schmeltz, Cat. Mus. Godeffroy, vol. 7, 1879, p. 60 (Samoa).

Muraena nebulosa (not Bloch) Bryan and Herre, Occas. Pap. Bishop Mus., vol. 2, no. 1, 1903, p. 127 (Marcus Island).

Gymnothorax nuttingi Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518, pl. 4, fig. 7. Honolulu.

Muraena goldsboroughi (not Jordan and Evermann) Günther, Journ. Mus. Godeffroy, vol. 2, pt. 17, 1910, p. 418 (part).

Gymnothorax pimetatus (not Schneider) Fowler and Silvester, Marine Pap. Carnegie Inst., 1922, p. 112 (Pago Pago).

Depth 14 to 21; head 7 2/3 to 8 1/3, 3 3/4 to 4 to vent, width 3 to 3 1/2 in its length; combined head and trunk 1 to 1 1/5 in tail. Snout 6 to 6 1/2 in head; eye 11 to 13, 1 3/4 to 2 in snout, 1 to 1 1/5 in interorbital; mouth cleft extends 1 to 2 eye diameters behind eye, length 2 1/2 to 3 in head; teeth in jaws uniserial, in very young biserial though inner series soon disappearing; vomerine teeth uniserial in young, later becoming irregular - or biserial and with

age only 2 short series remain;
mandibular teeth biserial in
young, outer series disappearing
with age except anteriorly where
always biserial; young with 2 or
3 teeth in row on premaxillary,
only 1 remaining with age, surrounding
loop of teeth 10 to a dozen;
interorbital 6 7/8 to 9, rather
broadly convex, with median
depression. Gill opening 2/3 of eye.
Dorsal origin over last fifth
in postocital space till over gill

opening, fin much higher than
anal; short caudal obtuse.

Generally pale yellowish,
with small numerous rounded
in very young.
blackish spots, about equal to eye, ↑
of later stages
In young ↑ spots with pale or
both of
yellow centers, ↑ which gradually
in size and extent
increase ↑ with age. Eventually
dark areas break and resulting
spots subdivide until whole body
marked with myriads of small
dark dots, fewer on whitish
abdomen.

Arabia, Zanzibar, Natal,
Madagascar, India, East Indies,
Philippines, Riu Kiu, Queensland,
Northern Australia, Western
Australia, New South Wales,
Melanesia, Micronesia, Polynesia,
Hawaii.

21784. Cebu market. March 20, 1909. Length 127 mm.

22987 to 22990, 22992. Cebu market. March 22, 1909. Length 160 to 230 mm.

10931 to 10941. Cebu market. March 24, 1909. Length 210 to 300 mm.

18378 to 18380. Cebu market. April 4, 1908. Length 141 to 305 mm.

18219 to 18224, 18227. Cebu market. April 5, 1908. Length 185 to 245 mm.

10959 and 10960. Cebu market. August 25, 1909. Length 186 to 203 mm.

8152 to 8154, 8156 to 8158. Cebu market. August 29, 1909. Length 220 to 290 mm.

A 1355. Great Tobea Island. December 15, 1909. Length 680 mm.

8995. Subat Bay, Luzon. June 23, 1909. Length 683 mm.

2640

4723. Ligpo Point, Balayan Bay, Balayan Bay and Verde Island Passage. January 18, 1908. Length 324 mms.

5979, 10894, 10896 to 10899. Little Santa Cruz Island. May 26, 1908. Length 138 to 505 mms.

23024 to 23026. Mactan Island. August 28, 1909. Length 94 to 200 mms.

22996 to 22999. Mactan Island. August 31, 1909. Length 70 to 282 mms.

22398. Mahinog, Camiguin Island. August 3, 1909. Length 116 mms.

6493. D. 5275. Malavatuan Island (N.), S. 71° E., 10.75 miles (N. 13°55'55" E. 120°10'15"), China Sea, vicinity southern Luzon. In 117 fathoms. July 16, 1908. Length 714 mms.

2641

1 example. Marongas Island, shore coral head. February 10, 1908. Length 90 mm. Very finely and minutely speckled with darker.

22478. Masinloc Bay, Luzon. November 22, 1908. Length 173 mm.

23027 to 23032. Hasipit, Mindanao. August 1, 1909. Length 145 to 228 mm.

23009, 23020. Hogar Point, Pinay. February 4, 1908. Length 163 to 253 mm.

21578, 23004, 23010, 23012. Pilas Island. September 12, 1909. Length 146 to 355 mm.

11607. Nablayan, Mindoro. December 12, 1908. Length 240 mm.

10900. Siluo Island. August 10, 1909. Length 404 mm.

18194. Simonor Island, Sulu Archipelago. February 24, 1908. Length 225 mm.

21575, 21577. Simalue Island, north of Tawi Tawi. September 22, 1909. Length 240 to 380 mm.

A660, 6598, 6601. Simalue Sibi Sibi Island. September 23, 1909. Length 230 to 563 mm.

5029. South Tumindao Island, Sulu Archipelago. February 26, 1908. Length 307 mm.

4913 to 4917. Jataan, Simulac Island, Sulu Archipelago. February 19, 1908 Length 307 to 816 mm.

4915, 7470 to 7472. Jataan, Simulac Island. February 20, 1908. Length 264 to 550 mm.

11246. Verde del Sur Island. April 6, 1909. Length 212 mm.

2643

12559 and 12560. Apra Bay, Guam. November 19 to 21, 1907. Length 178 to 258 mm.

18229 to 18232, 22365. Basa Reef, Gulf of Boni, Celebes. December 17, 1909. Length 190 to 467 mm.

6860. Kowloon market, China. October 22, 1909. Length 642 mm.

21367, 21369. Tomahu Island, Bouro Island and vicinity. December 12, 1909. Length 95 to 230 mm.

2644

Lycodontis thyrsoidea (Richardson)

Muraena thyrsoidea Richardson, Voy. Sulphur, Fishes, 1844, p. 111 (not pl. 49, fig. 1). China Seas, Canton; Voy. Erebus and Terror, Ichth., 1844-48, p. 91 (Sea of China). — Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, 1849, p. 1312, pl. 5, fig. 5 (Pinang). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 113 (type of description; Pinang). — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (Samoa). — Day, Fishes of India, pt. 4, 1878, p. 672, pl. 172, fig. 3. — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 39 (Samoa). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 81. — Steindachner, Denks. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 70, 1901, p. 514 (French Pass). — Günther, Journ. Mus. Godeffroy, vol. 6, pt. 17, 1910, p. 419 (Ponapé, Guam, Fate, Tubuai, Samoa, Tonga, Fiji).

Muraena thyrsoidea Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 593 (Luzon, Cavite, Santa Cruz).

Muraena (Gymnothorax) thyrsoidea Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 365 (Bleeker's example).

Gymnothorax thyrsoideus Bleeker, Atlas Ichth. Ind. Néerland, vol. 4, 1864, p. 103 (copied Cantor). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 198 (Pago Pago). — Seale, Occas. Pap. Bishop Mus., vol. 4, No. 1, 1906, p. 9 (Fate, New Hebrides, Tubuai, Austral Islands). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 209 (Vitanki, Cabalian, Jordan).

Lycodontis thyrsoidea Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 52 (Fate, Tubuai, Samoa, Society Islands, Apiang); vol. 11, No. 5, 1931, p. 317 (note).

Muraena griseobadia Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 89. Tonga Islands.

Thyrsoidea griseobadia Kaup, Archiv Naturges., 1856, pt. 1, p. 60 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 74 (copied).

2646

Gymnothorax griseo-badius Bleeker, Arch. Néerl. Sci. Nat. Harlem, vol. 13, 1878, p. 38 (New Guinea)

Muraena prosopeion Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 4, 1853, p. 300. Cauer and Priaman, Sumatra.

Thyrsoidea prosopeion Kaup, Archiv Naturges., 1856, pt. 1, p. 62 (reference); Cat. Apodal Fish Brit. Mus., 1856, p. 87 (copied).

Gymnothorax prosopeion Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 88, pl. (39) 183, fig. 3 (Cocos, Sumatra, Halmahera, Amboina, Timor).

Thyrsoidea arenata Kaup, Archiv Naturges., 1856, pt. 1, p. 61. China; Cat. Apodal Fish Brit. Mus., 1856, p. 85 (compiled). — Schmeltz, Cat. Mus. Godeffroy, No. 2, 1865, p. 9 (Samoa); No. 3, 1866, p. 11 (Samoa); No. 4, 1869, p. 26 (Samoa).

Muraena arenatus (Cuvier) Kaup, Archiv Naturges., 1856, pt. 1, p. 61 (name in synonymy).

2647

Gymnothorax obscuriroxtris Rendahl, Nat. Hist. Juan Fernandez and Easter Island, Skottsberg, vol. 3, Zool., pt. 1, 1921, p. 62. Easter Island.

Depth 15 1/4 to 15 2/3; head 8 to 8 2/3, 3 1/4 to 3 2/5 to vent, width 3 to 3 7/8 in its length; combined head and trunk 1 1/2 to 1 3/5 in tail. Snout 6 1/3 to 7 in head; eye 9 1/4 to 10 1/2, 1 1/2 to 1 2/3 in snout, 1 to 1 1/4 in interorbital; mouth cleft extends 1 to 1 1/2 eye diameters behind eye, length 2 to 2 1/2 in head; teeth in jaws and on vomer biserial, inner maxillaries fewer, longer than outer, depressible; 2 medial

depressible premaxillary teeth,
with outer loup of 15 to 18
subequally large teeth, larger
than maxillaries; interorbital
8 1/5 to 9 4/5, rather low, little
convex. Gill opening subequal
with eye.

Dorsal origin from first 2/5 to
1/2 in postrictal space, fin
higher than anal; short caudal
obtusely rounded.

Brown, obscurely marbled,
mottled or specked with darker,
in larger specimens forming more

or less irregular groups.

Arabia, Rodrigues, Seychelles, Andamans, Burma, Siam, East Indies, Philippines, China, Western Australia, Melanesia, Micronesia, Polynesia, Easter Island.

13209. Jolo Island. March 7, 1908. Length 283 mm.

18169. Marongas Island, vicinity of Jolo. February 10, 1908. Length 190 mm. [66.]

23013. Nogas Point, Panay. February 4, 1908. Length 288 mm.

2650

Genus Almasia Jordan and Snyder

Almasia Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 883. Type Almasia lichenora Jordan and Snyder, orthotypic.

Body robust, little less than tail. Snout pointed. Head large. Eye small, well advanced. Mouth cleft large, jaws not completely closing. Teeth biserial, very sharp, mostly set vertically, long slender canines in inner series and on vomer depressible. Teeth largest and biserial on vomer. Nasal tubes short. Gill opening small, close below middle in body depth. Dorsal origin before

gill opening. Coloration variegated.
One species. Known by its
"array of bristling teeth".

2652

Aëmasia lichenosa Jordan and Snyder

Aëmasia lichenosa Jordan and Snyder,

Proc. U. S. Nat. Mus., vol. 23, 1901, p. 883;

fig. 20. Wakanoura and Misaki, Japan.

Genus Enchelynassa Kaup

Enchelynassa Kaup, Archiv Naturgesch., 1855, pt. 1, p. 212. Type Enchelyndssa bleekeri Kaup, monotypic.

Body compressed, rather deep. Head moderate. Snout long, pointed. Eye small, far advanced. Mouth cleft large, not closing so only tips of jaws meet. Teeth not concealed by lips, biserial, irregular, inner series larger and depressible tiba few large vomerine fangs. Front nostrils at short space from snout tip, with low thickened rim and hind bilobed flap. Hind nostrils midway between front nostrils and eye, oval, not much smaller than eye, surrounded by broad, thin membrane. Gill opening small, nearly median in body depth. Dorsal usually begins before gill opening.

Enchelynassa canina (Quoy and Gaimard)

Muraena canina Quoy and Gaimard, Voy. Uranie, Zool., 1824, p. 247. Waigiu; Dawak.

Muraena (Enchelynassa) canina Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 390, fig. 191 (head), fig. 192 (dentition) (type of Enchelynassa bleekeri).

Gymnothorax caninus Bleeker, Nederland. Tijds. Dierk., vol. 2, 1864, p. 136 (reference).

Enchelynassa canina Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 197 (Samoa). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 59, pl. 3.a (Honolulu, Fakarava, type of Gymnothorax violentus); vol. 11, no. 5, 1931, p. 318 (reference); Proc. U. S. Nat. Mus., vol. 81, art. 8, 1932, p. 3 (Hinafoou).

2655

Enchelynassa bleekeri Kaup, Archiv Naturges., 1855, pt. 1, p. 212, pl. 10, fig. 3 (head). Leyden collection, 1856, pt. 1, p. 59 (Pacific Ocean); Cat. Apodal Fish Brit. Mus., 1856, p. 72, pl. 11, fig. 55 (head). No locality (Pacific Sea). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 136 (reference). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 27, 1904, p. 941 (Hawaiian Islands; Samoa). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 90, pl. 10 (Honolulu; Samoa).

Gymnothorax bleekeri Bleeker, Nederl. Tijds. Dierk., vol. 2, 1865, p. 136 (reference).

Enchelynassa bleekeri Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 90, pl. 10 (Honolulu; Samoa).

Muraena bleekeri Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 409 (Samoa, Tahiti, Raiatea, Hawaii).

Gymnothorax violentus Jordan and Evermann, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 165. Kailua, vol. 23, pt. 1, 1903 (1905), pl. 11.

Enchelynassa violentus Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 91 (type).

Enchelynassa rhinechidna Jordan, Journ. Pan Pac. Res. Inst., vol. 2, no. 4, Oct. Dec. 1927, p. 4 (Samoa; lapsus).

Genus Muraenophis Cuvier

Muraenophis Cuvier, Tabl. Elémentaire Hist. Nat., 1798, p. 329. Type Muraena helena Linnaeus, monotypic.

Muraenophis Lacépède, Hist. Nat. Poiss., vol. 5, 1803, p. 627. Type Muraena helena Linnaeus, designated by Jordan and Evermann, Genera of Fishes, pt. 1, 1917, p. 68.

Limomuraena Kaup, Archiv Naturges., 1856, pt. 1, p. 65. Type Muraena guttata Richardson, monotypic.

Lips continuous with skin of head. Teeth acute, sharp. Vomerine teeth uniserial or biserial. Both nostrils in conspicuous long tubes. Tail moderate, not twice long as

trunks. Vertical fins well developed, dorsal beginning before vent.

Species rather few. Usually variegated morays easily distinguished as both pairs of nostrils tubular.

Analysis of species

a'. Numerous whitish dark edged ocelli, partly confluent and larger below. pardalis.

a". Brownish black, with oval white spots, large as or larger than eye; mouth angle and gill opening black; inside mouth spotted with black. javanina.

2659

vs.[3] Body with numerous pale blotches, each with cluster of blackish spots.

australiae.

2660

Muraenophis pardalis (Schlegel)

Muraena pardalis Schlegel, Fauna Japonica, Poiss., pts. 10 & 11, 1846, p. 268, pl. 119. Japan. — Bleeker, Verh. Batavia. Genootsch. (Nat. Verh. Ned. Ind.), vol. 25, 1853, p. 20 (reference); Act. Soc. Sci. Ind. Néerl., no. 3, vol. 3, 1857-58, p. 30 (Japan). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 99 (Mauritius). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 879 (Wakanoura). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 408 (Hawaii, Tahiti). — Franz, Abhandlt. Kon. Bayer. Akad. Wiss., vol. 4, Suppl. Band 1, 1910, p. 16 (Aburatsubo).

Muraena (Muraena) pardalis Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 357, figs. 177-178 (type).

2661

Gymnothorax pardalis Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 86, pl. (25) 169, fig. 1, pl. (26) 170, fig. 2 (Java, Cocos, Japan); Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference).

Muraenophis pardalis Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 51 (Honolulu and Society Islands).

Muraena kailuae Jordan and Evermann, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 156. Kailua, Hawaii. — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 518 (Hapili Harbor, Maui; Honolulu). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 27, 1904, p. 941 (Honolulu; Laysan). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 88, pl. 9, figs. 20-21 (types; Hawaiian material). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 196

(Honolulu). — Jordan and Dickerson, Proc. U. S. Nat. Mus., vol. 34, 1908, p. 604 (Suva, Fiji).

Muraena lampra Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 423, fig. 3. Honolulu.

Muraena kauila Jenkins, Bull. U. S. Fish Comm., vol 22, 1902 (1903), p. 424, fig. 4. Honolulu.

2663

Muraenophis pavonina (Richardson)

Muraena pavonina Richardson, Voy. Sulphur, Ichth., 1844, p. 110, pl. 53, figs. 1-6. No locality; Voy. Erebus and Terror, Ichth., 1844-48, p. 90 (Southern Sea). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 98 (type; "Southern Seas").

Muraenophis pavonina Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 51 (no locality).

2664

Muraenophis australiae (Richardson)

Muraena helena australiae Richardson, Ichth. Voy. Erebus and Terror, 1844-48, (p. 80) pl. 49, figs. 1-6, Australia.

Muraena australis Mc Culloch, Austral. Mus. Mem., No. 5, June 29, 1929, p. 71 (reference).

Muraena vorax Ogilby, Proc. Royal Soc. Queensland, vol. 20, Jan. 2, 1907, p. 11.

2665

Genus Echidna Forster

Echidna Forster, Icon. Ined. Bibl. Banks., 1777, p. 181. Type Echidna variegata Forster; Enchiridion, Feb. 15, 1778, p. 81. Type Muraena echidna Gmelin, tautotypic. Gymnothorax Bloch, Naturges. Ausland. Fische, vol. 9, pt. 12, 1795, p. 83. Type Gymnothorax catenata Bloch, designated by Bleeker, Nat. Verh. Holland. Natsch. Haarlem, vol. 18, No. 2, 1863, p. 130.

Gymnomuraena Lacépède, Hist. Nat. Poiss., vol. 5, 1803, p. 648. Type Gymnomuraena doliata Lacépède, designated by Bleeker, Nederland Tijds. Dierk., vol. 2, 1865, p. 122.

Gymnopsis Rafinesque, Analyse de la nature, 1815, p. 93. Type Gymnomuraena doliata Lacépède, virtually. Gymnopsis Rafinesque proposed to replace Gymnomuraena Lacépède.

Inegaderus Rafinesque, Analyse de la nature, 1815, p. 93. Type Echidna variegata Forster, virtually. Inegaderus Rafinesque proposed to replace Echidna Forster.

Inolarii Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 79. Type Muraena ophis Rüppell = Muraena nebulosa Ahl, designated by Jordan, Genera of Fishes, pt. 2, 1919, p. 223.

Poecilophis Kaup, Archiv Naturges., 1856, pt. 1, p. 66. Type Gymnothorax catenata Bloch, designated by Jordan, Genera of Fishes, pt. 2, 1919, p. 272.

Leihala E. K. Jordan, Proc. U. S. Nat. Mus., vol. 66, 1925, p. 5. Type Poecilophis tritor Vaillant and Sauvage, monotypic.

Mouth cleft rather short. Teeth mostly obtuse, molar like. Only front nostril tubular. Hind nostril circular. Dorsal begins before gill opening. Tail moderate, not twice length of trunk.

Tropical morays, often brilliantly or strikingly colored. The rather few species are distinguished chiefly by their obtuse molar like teeth.

2668

Analysis of species.

a.' Tail equals, ⅓ longer or somewhat shorter than head and trunk.

b.' Uniform blacks or brown; dorsal origin above or behind gill openings.

c.' No white spot near mouth corner. nigra.

c.² White spot near mouth corner. rhodochilus.

b.² Marbled or mottled darker; dorsal origin before gill openings.

d.' Dorsal origin far before gill openings; premaxillary teeth in crescent, enclosing 2 strong teeth in middle; vomerine teeth biserial. delicatula.

d.² Dorsal origin shortly before gill openings; premaxillary teeth in group; vomerine teeth uniserial. amblyodon.

b.³ Spotted; dorsal origin before gill openings; premaxillary teeth in crescent with 0 or 2 central; tail somewhat shorter than head and trunk.

d.' Brown with numerous round or oval patches; head less than 3 in trunk. Xanthosoma.

d.² Numerous small spots or lines and 2 series of large, more or less star like patches; head 3½ to more than 4 in trunk. nebulosa.

b.⁴ Body with 24 to 29 narrow rings, exceptionally on tail only; when young teeth on premaxillary in peripheral series enclosing 3 larger mesial ones, biserial on vomer; with age in group on premaxillary plate and vomer. Polyzona.

a.² Tail twice or more than twice in head and trunk; roundish group on premaxillary plate and pear shaped group of vomerine teeth continuous; blackish brown with 30 to over 100 narrow white rings. Zebra.

2670

Echidna

~~Lycodontis~~ nigra (Day)

Muraena nigra Day, Proc. Zool. Soc.

London, 1870, p. 702. Port Blair, Andamans;

Fishes of India, pt. 4, 1878, p. 674, pl.

171, fig. 3; Fauna British India, Fishes,

vol. 1, 1889, p. 84.

2671

Echidna rhodochilus Bleeker

Echidna rhodochilus Bleeker, Nederl. Tijds. Dierk., vol. 1, 1863, p. (246) 247. Rotti Island; Atlas Ichth. Ind. Neerland, vol. 4, 1864, p. 79, pl. (23) 167, fig. 4 (Buro). — Weber, Siboga Expedt., vol. 57, Fische, 1913, p. 61 (Beo). — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 350 (Sinabang Bay and Lugu, Simalur Island, Beo). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 198, pl. 10, fig. 4 (Masbate, Sba, Palanas).

Muraena rhodochilus Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 132 (type).

2672

Echidna delicatula (Kaup)

Poecilophis delicatulus Kaup, Archiv Naturges., vol. 5, 1856, pt. 1, p. 67. Moluccas; Cat. Apodal Fish Brit. Mus., 1856, p. 100 (part).

Echidna delicatula Bleeker, Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 78, pl. (23) 167, fig. 3 (Amboina, Buro, Timor). — Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, 1905, p. 772 (Negros); Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 204 (Pago Pago). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 32 (Apia). — Beaufort, Bijdr. Dierk. Amsterdam, vol. 19, 1913, p. 100 (Saonela near Waigiu). — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 350 (Saonela). — Herre, Philippine Journ. Sci., vol. 23, no. 2,

Aug. 1923, p. 199, fig. 10 (teeth) (Puerto Galera, Dumaguete). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 50 (Samoa).

Muraena amblyodon (not Bleeker) Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 132 (part); Journ. Mus. Godeffroy, vol. 1, 1910, p. 424 (part).

Echidna kishinouyei Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 885, fig. 21. Okinawa, Riu Kiu.

Echidna trosula (Jordan and Starks) Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 203, fig. 8. Pago Pago, Samoa.

2674

depth 17 to 18 %; head 8 2/3 to 10 1/4, 3 4. to 4 2/3 to vent, width 3 to 3 1/5 in its length; combined head and trunk 1 1/8 to 1 1/2 in tail. Snout 6 to 6 3/5 in head; eye 7 1/4 to 7 3/4, 1 1/5 to 1 1/4 in snout, 1 to 1 1/8 in interorbital; mouth cleft extends 1/2 to 3/5 eye diameter behind eye, length 2 1/5 to 3 in head; teeth conic, on maxillaries biserial or biserial at least anteriorly, likewise mandibular teeth; about dozen short, conic large teeth on premaxillary; patch of small, biserial granular teeth on vomer;

Brown, lighter below.

interorbital 6 2/3 to 7 1/4, low, little convex. Gill opening 1 1/4 to 1 1/2 in snout, median in body depth.

Dorsal origin at last 1/4 in postrictal space, fin height 4 2/5 to 4 1/2 in head; anal little lower than dorsal.

Uniform dark brown or brownish dusky. Iris gray. Whitish blotch below eye and another at rictus often present. Fins like body color. Sometimes under surfaces of head and trunk paler brown than above.

East Indies, Philippines, Riu Kiu, Japan, Polynesia.

13717. Alimango Bay, Burias Island. March 5, 1909. Length 130 mm.

11011. Ragay River, Ragay Gulf, Luzon. March 10, 1909. Length 255 mm.

Type example A.N.S.P. Apia, Samoa. Bureau of Fisheries. Length 139 mm.

2677

Echidna amblyodon (Bleeker)

Muraena amblyodon Bleeker, Act. Soc. Sci. Ind. Néerl. (Manado), vol. 1, 1856, p. 72. Manado, Celebes. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 132 (type). — Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (Hawaii). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 420 (Samoa, Guam, Marquesas).

Muraena (Poecilophis) amblyodon Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Amboina).

2678

Echidna amblyodon Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 26 (Navay). — Seale, Occas. Pap. Bishop Mus., vol. 4, No. 1, 1906, p. 12 (Fukuhiva). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 200, fig. 11 (teeth) (Puerto Galera). — Fowler, Bull. Bishop Mus., No. 20, 1925, p. 31 (Samoa); Mem. Bishop Mus., vol. 10, 1928, p. 50 (Society Islands, Apia, Fukuhiva); vol. 11, No. 5, 1931, p. 317 (reference).

2679

Echidna delicatula (not Kaup) Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 204 (Pago Pago). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 32 (Apia).

2680

Echidna xanthospila (Bleeker)

Muraena xanthospilos Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 19, 1859, p. 349, Karangbollong, Java.

Muraena xanthospila Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 131 (type); Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 423 (Samoa).

Echidna xanthospilus Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 79, pl. (23) 167, fig. 1 (Java). — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 348 (Bleeker's example). — Deraniyagala, Ceylon Administrat. Rep., 1925, p. F15.

Echidna xanthospila Steindachner, Vitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1423 (Upolu). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 49 (compiled).

2681

Poecilophis ornata Kaup, Abhandl. Natur. Verein. Hamburg, 1859, p. 28, pl. 5. East Indies.

2682

Echidna nebulosa (Ahl)

Muraena nebulosa Ahl, Specimen Ichth. Inaug. Upsichth. Thunberg, 1789, p. 7, pl. (right fig.). East India. — Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 94, pl. 47, figs. 1-16 (Indian Ocean, Chinese Sea, Australia, Polynesia). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 130 (Natal, Zanzibar, Madagascar, Seychelles, India, Moluccas, Amboina, Macassar, Siam, China Sea, Fiji, Trinity Bay, New Holland). — Klunzinger, Verh. Zool.-Bot. Gesell. Wien, vol. 21, 1871, p. 618 (Red Sea). — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (South Sea). — J. Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, 1876, p. 351 (all reefs [Queensland]). — Day, Fishes of India, pt. 4, 1878, p. 673, pl. 172, fig. 2. — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (South Sea). — Günther, Rep. Voy. Challenger, vol. 1, pt. 6, 1880, p. 54 (Cebu), p. 58 (Tahiti). —

de Vis, Proc. Linn. Soc. New South Wales, vol. 8, 1883, p. 457 (New Britain). — Pöhl, Cat. mus. Godeffroy, No. 9, 1884, p. 39 (South Sea). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 83, fig. 33. — Borsieri, Ann. Mus. Civ. Stor. Nat. Genova, vol. 41, 1904, p. 218 (dissei). — Regan, Proc. Zool. Soc. London, 1909, p. 403 (Christmas Island, Indian Ocean). — (Regan) Bedot, Rev. Suisse Zool., vol. 17, 1909, p. 169 (Amboyna). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 423 (Hawaiian Islands). — Gilchrist and Thompson, Ann. South African Mus., vol. 11, No. 2, 1911, p. 52 (Natal); Ann. Durban Mus., vol. 1, No. 4, 1917, p. 305 (compiled).

Muraena (Poecilophis) nebulosa Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 46 (Benculen; Buru).

Muraena nebulosa Elera, Cat. Fishes Filipinas, vol. 1, 1895, p. 594 (Cebu).

2684

Gymnothorax nebulosus Schneider, Syst. Ichth. Bloch, 1801, p. 528 (on Ahl). — Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 6 (Shortland Island; Nukuhiva).

Gymnothorax nebulosa Garman, Mem. Mus. Comp. Zool., vol. 24, 1899, p. 314 (Society Islands); Bull. Mus. Comp. Zool., vol. 39, 1903, p. 239 (Suva, Fiji).

Echidna nebulosa Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1900, p. 524 (Samoa). — Seale, Occas. Pap. Bishop Mus., vol. 1, 1902, pp. 18, 19 (Honolulu). — Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 520 (Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 520 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 110, pl. 1 (Honolulu, Hilo, Kailua). — Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, 1905, p. (Negros). — Stead, Fishes

of Australia, 1906, p. 44 (New South Wales). — Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1422 (Apolo). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 203 (Samoa). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 241 (Calayan). — Jordan and Dickerson, Proc. U. S. Nat. Mus., vol. 34, 1908, p. 604 (Suva, Fiji). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 30 (Hawaii; Samoa). — Beaufort, Bijdr. Dierk., Amsterdam, vol. 19, 1913, p. 100 (Saonek). — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 348, fig. 170 (dentition) (Simalur Island, Java, Muara Reef, Sulu, Beo, Sula Besi, Ambon, Saonek, Aru, Saman, Flores, Sumba). — Fowler, Copeia, No. 112, Nov. 20, 1922, p. 82 (Hawaii). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, 1922, p. 10 (Zamboanga). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 197, pl.

10, fig. 3 (Leyte, Mindoro, Ibu, Guam). — Fowler, Bull. Bishop Mus., No. 22, 1925, p. 5 (Guam), p. 31 (Samoa). — Barnard, Ann. South African Mus., vol. 21, pt. 1, 1925, p. 214 (Natal coast). — Deraniyagala, Ceylon Administrat. Rep., 1925, pl. F 15. — Fowler, Bull. Bishop Mus., No. 38, 1927, p. 6 (Howland and Baker Islands). — Whitley, Records Austral. Mus., vol. 16, No. 1, 1927, p. 7 (New Hebrides; Samoa). — Fowler, Mem. Bishop Mus., vol. 10, p. 49 (Marcus, Raiatea, Rarotonga, Nukuhiva, Portland, Honolulu, Guam, Samoa, Ebon, Ascension, Society, Apiang, Apia). — Whitley, Journ. Pan Pacif. Res. Inst., vol. 3, No. 1, Jan.-March 1928, p. 11 (Santa Cruz Island). — Fowler, Mem. Bishop Mus., vol. 11, No. 5, 1931, p. 317 (Suva Point, Fiji; Guam).

Muraena echidna Gmelin, Syst. Nat. Linn., ed. 13, pt. 1, 1789, p. 1135. Palmerston Island. — Walbaum, Artedi Pisc., vol. 3, 1792, p. 153 (compiled).

Gymnothorax echidna Buchow, Naturges., vol. 4, 1799, p. 181. — Schneider, Syst. Ichth. Bloch, 1801, p. 52 (Otaheite, Tahiti).

Muraenophis echidna Lacépède, Hist. Nat. Poiss., vol. 5, 1803, pp. 627, 641 (Palmerston Island).

Strophidon echidna Mc Clelland, Calcutta Journ. Nat. Hist, vol. 5, 1845, p. 215 (New Britain; Amboina).

Echidna variegatus Lichtenstein, Descript. Animal Forster, 1844, p. 181. Huahina, Bolam, Tongatabu.

Echidna variegata Bleeker, Atlas Ichth. Ind. Neerl. vol. 4, 1864, p. 80, pl. (24) 168, fig. 2 (Java, Sumatra, Cocos, Celebes, Timor, Buro,

Amboina, Ceram, Goram); Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Peters, Monatsb. Akad. Wiss. Berlin, 1876, p. 446 (Mauritius); 1876 (1877), p. 850 (Mauritius; Timor). — Bleeker, Verslagen Kon. Akad. Wet. Amsterdam, ser. 2, vol. 12, 1878, p. 193 (Manabare, East Madagascar).

Poecilophis variegatus Kaup, Archiv Naturges., vol. (), 1856, pt. 1, p. 66 (compiled). — Guichenot, Notes Ile Reunion, vol. 2, 1862, pi. 30.

Poecilophis variegata Kaup, Cat. Apodal Fish Brit. Mus., 1856, p. 98, pl. 13, fig. 67, a, b, d (head and dentition) (compiled).

Poecilophis (Muraenophis) variegatus Guichenot, Mém. Soc. Sci. Nat. Cherbourg, ser. 2, vol. 2, 1866, p. 147 (Madagascar).

Muraenophis variegata Jouan, Mém. Soc. Sci. Cherbourg, ser. 2, vol. 5, 1870, p. 106 (Seychelles).

Muraena ophis Rüppell, Atlas Reise nördl. Afrika, Fische, 1828, p. 116, pl. 29, fig. 2. Red Sea. — Kittlitz, Denkw. Reise Mikronesien, vol. 2, 1858, p. 20 (Ualan).

Thaerodontis ophis McClelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 217 (Red Sea).

Muraena geographica (Solander) Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 94. Ethiopia.

Echidna cocoa Garman, Mem. Mus. Comp. Zool., vol. 24, 1899, p. 313. Cocos Island.

Echidna scabra Garman, Mem. Mus. Comp. Zool., vol. 24, 1899, p. 314. Cocos Island.

depth 14 1/5 to 18 2/3; head 8 1/2 to 2690
10 1/8, 4 1/3 to 4 4/5 to vent, width 1 2/5 3/5 to
3 1/5 in its length; tail 7/8 to 9/10 of
combined head and trunk. Snout 5 1/3
to 7 in head; eye 8 2/5 to 12 1/4, 1 3/4 to
2 in snout, 1 3/4 to 1 4/5 in interorbital;
mouth cleft extends eye diameter
behind eye, length 2 2/3 to 3 1/6 in
head; upper teeth small, conic,
short, uniserial, in young with
inner short row of 2 to 4 teeth; lower
teeth biserial, inner row largers, or
only anteriorly biserial in young;

2691

2 large medial molar teeth on
premaxillary surrounded in
front and laterally by semicircle of
smaller teeth; vomerine teeth biserial;
interorbital 6 1/8 to 8 1/4, convex.
Gill opening long as eye.

Dorsal origin at last 2/5 in
postorbital space, fin higher than
anal; caudal small, short, rounded.

Pale olivaceous, finely dotted or
speckled with dusky to blackish.
Along back and on dorsal fin 26
blackish blotches, all spotted at

least medially with small irregular ochraceous marks. Though dark saddles extend on back and many to edge of dorsal, none reach median axis of trunk or tail. Along lower side of body similar blotches, alternate on trunk and opposed on lower side of tail. On fore part of tail alternating blackish blotches occur at first, soon obsolete or little behind middle. On sides of abdomen blackish blotches continue down on belly, though not joining and in this region

entirely black. An head transverse blackish band extends down close behind eye narrowly, followed by similar and much broader one close behind. Both bands mottled with ochraceous, though complete below. Iris yellowish. Mouth corners mottled with blackish. Anal and caudal broadly margined with white or cream white.

Red Sea, Zanzibar, Natal, Mauritius, Madagascar, Seychelles, East Indies, Philippines, China, Queensland, New South Wales, Melanesia, Micronesia, Polynesia, Hawaii.

10945. Cebu market. March 24, 1909. Length 370 mm.

9378. Cebu market. August 31, 1909. Length 497 mm.

14123. Great Tobea Island. December 15, 1909. Length 465 mm.

10893. Little Santa Cruz, Zamboanga. May 26, 1908. Length 200 mm.

22371. Maculabo Island. June 14, 1909. Length 310 mm.

22486. Marongas Island. February 10, 1908. Length 203 mm.

23000 to 23003. Pilas Island. September 12, 1909. Length 73 to 160 mm.

4649. Port Binanga, Luzon. January 9, 1908. Length 308 mm.

21576. Simalue Libi Libi Island. September 22, 1909. Length 162 mm.

2695

A661, 65-99. Simalue Sibi Sibi Island. September 23, 1909. Length 280 to 496 mm.

4949. Tataan, Simulac Island. February 20, 1908. Length 443 mm.

20111. Ulugan Bay near Bakeli River mouth, Palawan. December 23, 1908. Length 443 mm.

18233. Basa Reef, Gulf of Boni, Celebes. December 17, 1909. Length 386 mm.

22679. Labuandata Bay, Gulf of Boni, Celebes. December 18, 1909. Length 356 mm.

21368. Tomahu Island. December 12, 1909. Length 250 mm.

2685

Echidna polyzona (Richardson)

Muraena polyzona Richardson, Voy. Sulphur, Fishes, 1844, p. 112, pl. 55, figs. 11–14. No locality; Voy. Erebus and Terror, Ichth., 1844-48, p. 93 (locality?). — Schmeltz, Cat. Mus. Godeffroy, No. 3, 1868, p. 12 (Samoa). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 129 (East Indies, type of Muraena dizona). — Klunzinger, Verh. Zool. Bot. Gesell. Wien, Vol. 21, 1871, p. 617 (Red Sea). — Day, Fishes of India, pt. 4, 1878, p. 677 (not pl. 172, fig. 2). — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (Samoa). — Öhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 39 (Samoa). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 83. — Steindachner, Abhandl. Senckenburg. naturf. Gesell., vol. 25, 1901, p. 457 ( ). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 7, 1910, p. 422 (Marquesas, Samoa, Tahiti, Wallis, New Lauenburg, Duke of York Islands). — Gilchrist and

Thompson, Ann. South African Mus., vol. 11, pt. 2, 1911, p. 54 (Natal).

Murœna polyzona Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 594 (Luzon, Manila).

Poecilophis polyzonus Kaup, Archiv Naturgesch., 1856, pt. 1, p. 66 (London, Paris [Museums]); Cat. Apodal Fish Brit. Mus., 1856, p. 101 (compiled).

Poecilophus polyzonus Schmeltz, Cat. Mus. Godeffroy, No. 2, 1865, p. 79 (Samoa).

Poecilophis polyzona Kner, Reise Novara, Fische, 1865, p. (382) 82 (Tahiti).

Echidna polyzona Bleeker, Atlas Ichth. Ind. Neêrl., Vol. 4, 1864, p. 81, pl. (24) 168, fig. 3 (Java, Cocos, Celebes, Buro, Amboina, Ceram, Timor). — Schmeltz, Cat. Mus. Godeffroy, No. 3, 1866, p. 12 (Samoa); No. 4, 1869, p. 26 (Samoa). — Fowler, Proc. Acad. Nat. Sci. Philadelphia,

1900, p. 496 (Honolulu). — Steindachner, Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1423 (Upolu). — Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 12 (Nukuhiva, Marquesas Islands). — Jordan and Richardson, Bull. U. S. Fish Comm., vol. 27, 1907 (1908), p. 241 (Calayan). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 30 (Hawaii). — Weber and Beaufort, Fishes Indo. Austral. Archipelago, vol. 3, 1916, p. 346, fig. 169 (dentition) (Ambon, Waigiu, Rotti). — Fowler, Copeia, no. 112, Nov. 20, 1922, p. 82 (Hawaii). — Herre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 196 (Calapan, Mazuguba). — Fowler and Ball, Bull. Bishop Mus., no. 26, 1925, p. 6 (French Frigates Shoal). — Barnard, Ann. South African Mus., vol. 21, pt. 1, 1925, p. 213 (Natal coast). — Fowler, Bull. Bishop Mus., no. 38, 1927, p. 6 (Christmas Island); Mem. Bishop Mus., vol. 10, 1928, p. 48, fig. 11 (Honolulu, Marcus, Nukuhiva,

French Frigates Shoal, types of Echidna leihala, Echidna zonophaea, Echidna psalion, Echidna obscura, Echidna vincta, Echidna zonata, Echidna tauvagei, Fakarava, Apia, Hawaii, Society Islands); vol. 11, no. 5, 1931, p. 316 (Honolulu).

Gymnothorax polyzona Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 306 (compiled).

Leihala polyzona Whitley, Rec. Austral. Mus., vol. 16, no. 1, 1927, p. 8 (Bougainville, Solomons; Haapia, Friendly Islands; Duke of York Island and Malabula, New Hebrides). — Mc Culloch, Austral. Mus. Mem., vol. 5, pt. 1, June 29, 1929, p. 75 (reference).

Muraena helena (not Linnaeus) Bonnaterre, Tabl. Ichth., 1788, p. 33 (Amboina). — Forster, Fauna Indica, 1795, p. 14. — Lönnberg, Bihang Svensk.

Akad. Handl., vol. 22, No. 1, 1896, p. 24.

Muraena fasciqula Peters, Archiv Naturges., 1855, p. 271. Mozambique. — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 132 (copied).

Poecilophis fasciqula Kaup, Archiv Naturges., 1856, pt. 1, p. 67 (reference); Cat. Apodal Fish. Brit. Mus., 1856, p. 102 (copied).

Muraena dijona Bleeker, Naturk. Tijds. Nederl. Indië, vol. 22, 1860, p. (249) 260. Timor.

Echidna tutor Vaillant and Sauvage, Rev. Mag. Zool., ser. 3, vol. 3, 1875, p. 287. Hawaiian Islands. — Jordan and Snyder, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 208 (Honolulu). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 248 (Fakarava, Paumotus).

Leihala tritor E. K. Jordan, Proc. U. S. Nat. Mus., vol. 66, 1925, p. 5, pl. 1, figs. 1–2 (Honolulu).

Echidna zonata Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1900, p. 495, pl. 18, fig. 2. Honolulu. — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 108, fig. 31 (types of Echidna victa). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 30 (type).

Echidna leihala Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 428, fig. 9. Honolulu. — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 109, fig. 32 (types).

Echidna vincta Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 429, fig. 10. Honolulu. — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 521 (Honolulu).

Echidna obscura Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 430, fig. 11. Honolulu. — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 107, fig. 30 (types).

Echidna psalion Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 431, fig. 12. Honolulu. — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 106, fig. 29 (type).

Muraena nebulosa (not Bloch) Bryan and Herre, Occas. Pap. Bishop Mus., vol. 2, no. 1, 1903, p. 127 (Marcus Island).

Echidna zonophasa Jordan and Evermann, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 167. Honolulu; vol. 23, pt. 1, 1903 (1905), p. 109, pl. 21 (types).

Echidna dawsoni Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 30, fig. 8. No locality (Hawaii?).

depth 15 7/8 to 21; head 8 3/4 to 8 5/6, 3 7/8 to 4 3/5 to vent, width 3 3/5 to 4 in its length; combined head and trunk variably slightly longer or shorter than tail. Snout 4 4/5 to 5 3/4 in head; eye 7 1/3 to 8 1/4, 1 1/3 to 1 2/5 in snout, equals interorbital; mouth cleft extends 1 1/8 eye diameters behind eye, length 2 3/4 to 3 1/4 in head; teeth in jaws conic, biserial, inner lower larger; premaxillary with 3 median teeth surrounded by 2 outer rows laterally and 1 anteriorly, all more

molar like with age; vomer with biserial teeth in young increasing to form large ovoid patch of about 5 irregular series, median largest and all molar like; interorbital 6 1/3 to 7 1/4, convex. Gill opening nearly or quite equals eye.

Dorsal origin about 1/3 to 1/2 in postorbital space, continuous behind with very short caudal; anal lower than dorsal.

Dark or light brown with 24 to 30 dark brown rings, variably

interrupted, obsolete or largely even absent except at end of tail. Sometimes coloration when tending to absence of dark rings or blotches, obscurely marbled or mottled. Often dark blotch or streak at mouth corner.

Red Sea, Mozambique, Natal, East Indies, Philippines, Formosa, Riu Kiu, Melanesia, Polynesia, Hawaii.

2705

9386. Cebu market. September 4, 1909. Length 480 mm.

14122. Great Tobea Island. December 15, 1909. Length 398 mm.

8198. Port Busin, Burias Island. March 8, 1909. Length 425 mm.

2706

Echidna zebra (Shaw)

(Gymnothorax zebra Shaw, Naturalist's Miscellany, vol. 9, 1997, pl. 322. "American Seas" (error). — Schneider, Syst. Ich. Bloch, 1801, p. 528 (Museo Hunteri).

(Gymnomuraena zebra Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 95 (Sumatra; New Britain). — Kaup, Archiv Naturges., 1856, pt. 1, p. 68 (Sumatra; New Britain; Madagascar); Cat. Apodal Fish Brit. Mus., 1856, p. 104, pl. 14, fig. 70 (upper dentition) (compiled). — Bleeker, Nederl. Tijdschr. Dierk., vol. 1, 1863, p. 345 (Madagascar).

(Gymnomuraena (Muraenophis) zebra Guichenot, Mém. Soc. Sci. Cherbourg, ser. 2, vol. 2, 1866, p. 148 (Madagascar).

Echidna zebra Bleeker, Atlas Ichth. Ind. Neêrl., vol. 4, 1864, p. 81, pl. (27) 171, fig. 1 (Sumatra, Buro, Amboina, Timor). — Schmeltz, Cat. Mus. Godeffroy,

no. 3, 1866, p. 12 (Samoa). — Bleeker, Verslagen Kön. Akad. Wet. Amsterdam, ser. 2, vol. 2, 1868, p. 301 (Waigiu). — Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 26 (Viti Islands). — Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Röhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (Samoa). — Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 520 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 106, pl. 20 (Honolulu, Kailua, Samoa). — Steindachner, Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 115, pt. 1, 1906, p. 1442 (Upolu). — Jordan and Seale, Bull. Bur. Fisheries, vol. 25, 1905 (1906), p. 203 (Samoa). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 27 (Muscat Cove, Gulf of Oman [wrongly ascribed to Philippines]). — Weber and Beaufort, Fishes Indo-Austral. Archipelago, vol. 3, 1916, p. 345, fig. 168 (Banda; Flores). — Herre, Philippine Journ. Sci., vol. 23, no. 2,

August 1923, p. 194 (Hasuglua). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1923, p. 37 (Madagascar); Mem. Bishop Mus., vol. 10, 1928, p. 48, pl. 1E (Honolulu, Samoa, Society, Ebon, Apiang). — Deraniyagala, Ceylon Administrat. Rep., 1925, p. F15. — Fowler, Mem. Bishop Mus., vol. 11, no. 5, 1931, p. 316 (reference).

Muraena zebra Günther, Cat. Fishes Brit Mus., vol. 8, 1870, p. 128 (type; types of Muraena molendinaris and Gymnomuraena fasciata, Sumatra, Amboina, East Indies, Samoa, Seychelles). — Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 620 (Red Sea). — Day, Fishes of India, pt. 4, 1878, p. 673. — Schmelty, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (Samoa; Viti Islands). — Day, Fauna British India, Fishes, vol. 2, 1889, p. 82. — Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 594 (Cavite, Luzon, Santa Cruz, Batangas, Hasuglua). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17,

1910, p. 422 (Samoa, Society Islands, Kingsmills, New Lauenberg, Duke of Yorks Island).

Gymnomuraena doliata Lacépède, Hist. Nat. Poiss., vol. 5, 1801, pp. 648, 649, pl. 19, fig. 4. New Britain; Dict. Sci. Nat., vol. 20, , p. 125, pl. Poiss., 79, fig. 2. — Mc Clelland, Calcutta Journ. Nat. Hist, vol. 5, 1845, p. 217 (compiled).

Muraena molendinaris Bennett, Proc. Zool. Soc. London, vol. 1, 1833, p. 32. Mauritius.

Gymnomuraena fasciata Kaup, Archiv Naturges., vol. 22, pt. 1, 1856, p. 68. Muscat; Cat. Apodal Fish Brit. Mus., 1856, p. 103, pl. , fig. 69 (compiled).

Muraenophis fasciatus (Hardwicke) Kaup, Archiv Naturges., vol. 22, pt. 1, 1856, p. 68 (name in synonymy).

2710

Muraenichthys schultzei (not Bleeker Day, Fishes of India, pt. 4, 1878, pl. 169, fig. 5 (transposed).

Genus Uropterygius Rüppell

Uropterygius Rüppell, Neue Wirbelth. Fische, 1838, p. 83. Type Uropterygius concolor Rüppell, monotypic.

Scutica Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 1, 1896, p. 403. Type Gymnomuraena nectura Jordan and Gilbert, orthotypic.

Scuticaria Jordan and Snyder, Proc. U. S. Nat. Mus., vol. , 1901, p. 886. Type Ichthyophis tigrinus Lesson, orthotypic.

Anarchias (Jordan and Starks) Jordan and Seale, Bull. Bur. Fisher., Vol. 25, 1905 (1906), p. 204. Type Anarchias allardicei Jordan and Seale.

Snout moderate, about half length of mouth cleft. Mouth cleft moderate, not half of head. Teeth small, subequal, pointed, in several series. Tail about long as trunk. Vertical fins rudimentary, confined to end of tail. No pectoral.

Small or moderate sized morays, represented by few species with apparent absence of fins.

Analysis of species

a.' Ebopterygius. Tail subequal, longer or shorter than head and trunk combined.

b.' Uniform brown; depth 20 to 33.

c.' Tail equals or much longer than head and trunk; head 7 to 8 2/5. concolor.

c.² Tail 1/3 total length; head 13. brevicauda.

b.² Color mottled, marbled or spotted.

d.' Gill opening midway in body depth; 2 or 3 rows of teeth in jaws.

e.' Head 7 to 7 1/2; blackish, with variable pale spots. macrocephalus.

e.² Head 8 1/2; brownish, with numerous variable small waved

cross bands. fasciolatus.

e.[3] Head 9 to 11; brownish, marbled darker. marmoratus.

e.[4] Head 11; muzzle yellow; body with 2 or 3 rows of large dark blotches. polyspilus.

d.[2] Gill opening high above middle of body depth.

f.[1] Teeth very numerous, in bands; reddish, with close set variable small dark spots. suprafloratus.

f.[2] Teeth biserial in jaws and on vomer; uniform cinnamon brown. okinawae.

a.[2] Scuticaria. Tail 1 3/4 to over 2 times head and trunk combined.

g.' Variable dark blotches on pharynx, not forming elongate dark streaks. tigrinus.

g.² Dark blotches on pharynx forming elongate blackish streaks and dark blotches on head small. fijiensis.

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Uropterygius concolor Rüppell

Uropterygius concolor Rüppell, Neue Wirbel[illegible], Fische, 1838, p. 83, pl. 20, fig. 4. Massaua, Red Sea. — Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 30. — Jordan and Seale, Proc. U. S. Nat. Mus., vol. 25, 1905, p. 206 (Samoa), p. 772 (Negros). — Seale, Occas. Papers Bishop Mus., vol. 4, No. 1, 1906, p. 10 (Nukuhiva, Marquesas Islands). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 250 (Rangiroa, Paumotus). — Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 231 (Calapan and Ibu). — Fowler, Bull. Bishop Mus., No. 22, 1925, p. 5 (Guam). — Fowler and Ball, Bull. Bishop Mus., No. 26, 1925, p. 7 (French Frigates Shoal). — Whitley, Journ. Pan Pac. Res. Inst., vol. 1, No. 2, Jan. March 1927, p. 8 (Rotuma). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 71, 1927, p. 2 (Poeloe Toeloes Island, Sumatra). — Fowler, Bull. Bishop Mus., No. 38, 1927, p. 7 (Palmyra and Canton Island); Mem.

2717

Bishop Mus., vol. 10, 1928, p. 60 (Agaña, Guam, Palmyra, Fanning, Nukuhiva, French Frigattes Shoal, Samoa, Rangiroa, Pago Pago, Society Islands, type of Uroptergius lelucurus); vol. 11, no. 5, 1931, p. 318 (reference).

Gymnomuraena concolor Ehr. Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 217 (Red Sea). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 134 (Cape York). — Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 21, 1871, p. 620 (Red Sea). — Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 426 (Rotuma, Cape York, Hawaii). — Weber, Siboga Expedt., vol. 57, Fische, 1913, p. 63 (Borneo Banks, Karkaralang, Nusa Laut, Kur). — Regan, Ann. Durban Mus., vol. 1, 1914-17, p. 458 (Durban). — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 395 (Nias, East Borneo, Ambon, Nusa Laut, Kur, Savu, Solor, Humboldt Bay). — Barnard, Ann. South African

Mus., vol. 21, 1925, p. 215 (Natal coast).
— Weeraniyagala, Ceylon Administrat. Rep., 1925, p. F15.

Muraenoblenna olivacea Lacépède, Hist. Nat. Poiss., vol. 5, 1804, pp. 652, 653. "Magellan Strait."

Uropterygius unicolor Kaup, Archiv Naturges., 1856, pt. 1, p. 69 (on Rüppell, pl. 20, fig. 4); Cat. Apodal Fish Brit. Mus., 1856, p. 105 (copied).

Scuticaria unicolor Seale, Bull. Mus. Comp. Zool., vol. 61, no. 4, May 1917, p. 94. Society Islands.

Gymnomuraena fusca Peters, Monatsber. Akad. Wiss. Berlin, 1866 (1867), p. 524. Amboina. — Günther, Cat. Fishes Brit. Mus., vol. 7, 1870, p. 134 (copied). — Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 406 (Amboina River).

Muraena tile (not Buchanan-Hamilton) Seale, Occas. Pap. Bishop Mus., vol. 1, no. 3, 1900 (1901), p. 62 (Guam).

Uropterygius leucurus Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 521, pl. 6, fig. 12. Between Maui and Lanai, 28 fathoms. — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 112, pl. 13, fig. 2 (type).

Uropterygius marmoratus (not Lacépède) Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. (south of Molokai; between Maui and Lanai).

Anarchias allardicei Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 204, fig. 9. Pago Pago. — Beaufort, Bijd. Dierk., Amsterdam, pt. 19, 1913, p. 101 ( ). — Fowler and Silvester, Marine Pap. Carnegie Inst., 1922, p. 114 (Pago Pago).

2720

Muraena allardicei Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 421 (Society Islands).

Anarchias knighti Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 205, fig. 10. Apia.

Depth 16 1/3 to 19 1/2; head 8 1/3 to 9 1/8, 3 2/3 to 4 4/5 to vent, width 3 1/5 to 4 1/5 its length; combined head 1 to 1 1/4 in tail. Snout 5 4/5 to 6 in head; eye 10 to 12, 1 3/4 to 2 in snout, 1 1/8 to 1 2/5 in interorbital; mouth cleft extends 2 eye diameters behind eye, length 2 1/3 to 2 2/5 in head; teeth in jaws biserial,

inner larger, well spaced and depressible; vomerine teeth with short single series; premaxillary teeth variably longer, or shorter than inner jaw series, often 2 or 3 fang like and depressible; interorbital 7 to 7¼, low, broadly convex. Gill opening subequal with eye.

Rudimentary fins only at end of tail.

Uniform brown, mandible sometimes paler. Iris gray.

Red Sea, Natal, Mauritius, East Indies, Philippines, Queensland, Micronesia, Polynesia, Hawaii.

2722

10942, 10943. Cebu market. March 24, 1909. Length 303 to 355 mm.

8155. Cebu market. August 29, 1909. Length 290 mm.

24 examples. Subat Bay, Luzon, tide pools. June 23, 1909. Length 57 to 107 mm.

19675. Santa Cruz Island, Marinduque. April 24, 1908. Length 190 mm.

1 example. Reefs of Apra Bay, Guam. November 19 to 21, 1907. Length 163 mm.

Uropterygius brevicauda (Regan)

Gymnomuraena brevicauda Regan, Rev. Suisse, Zool., vol. 11, 1903, p. 414, pl. 13, fig. 1. Mauritius.

Uropterygius macrocephalus (Bleeker)

Gymnothorax macrocephalus Bleeker, Nederl. Tijds. Dierk., vol. 2, 1865, p. 54. Amboyna; Atlas Ichth. Ind. Neerl., vol. 4, 1864, p. 114, pl. (21) 165, fig. 2 (type).

Uropterygius macrocephalus Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905, p. 206 (Apia). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 32 (Apia); Mem. Bishop Mus., vol. 10, 1928, p. 60 (Palmyra, Fakarava, Ebon).

Gymnomuraena macrocephalus Günther, Journ. Mus. Godeffroy, vol. 19, pt. 17, 1910, p. 425 (Marquesas Islands). — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 396 (Mauras Reef; Harakelang).

(Gymnomuraena) marmorata (not Lacépède) Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 133 (type of Gymnothorax macrocephalus).

2725

Gymnomuraena tigrina (not Lesson) Weber, Siboga Expd., vol. 57, Fische, 1913, p. 63 (Muaras Reef).

2726

Uropterygius fasciolatus (Regan)

Gymnomuraena fasciolatus Regan, Ann. Mag. Nat. Hist., ser. 8, vol. 4, 1909, p. 438. Duke of York Island. — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. , fig. (head) (type).

Uropterygius fasciolatus Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 61 (compiled).

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Uropterygius marmoratus (Lacépède)

Gymnomuraena marmorata Lacépède, Hist. Nat. Poiss., vol. 5, 1803, pp. 648, 649. New Britain. — Mc Clelland, Calcutta Journ. Nat. Hist., vol. 5, 1845, p. 217 ("Europe"). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 133 (East Indies, Borneo, types of Muraena microptera). — Schmeltz, Cat. Mus. Godeffroy, No. 5, 1874, p. 38 (Elea; Savay). — Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 405 (Shanghai, Benculen, Zamboanga, Amboina River, Atapupu, Timor). — Day, Fishes of India, pt. 4, 1878, p. 674, pl. 172, fig. 5. — Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 60 (Elea, Savaii). — Pöhl, Cat. Mus. Godeffroy, No. 9, 1884, p. 40 (South Sea). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 85, fig. 34. — Elera, Cat. Fauna Filipinas, vol. 1, 1895, p. 595 (Mindanao; Zamboanga). — Bartlett, Sarawak Gazette, vol. 26, No. 368, 1896, p. (reference). — Boulenger, Ann. Mag. Nat. Hist., ser. 6,

vol. 20, 1897, p. 374 (Rotuma). — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 425 (Hawaii). — Weber, Siboga Exped., vol. 57, Fische, 1913, p. 62 (Paternoster Islands, Dangala, Imaras Reef, Taruna, Ambon, Ilula Besi, Molo Strait, between Wowoni and Buton). — Weber and Beaufort, Fishes Indo-Austral. Archipelago, vol. 3, 1916, p. 397, figs. 193-194 (Nias, Simalur, Batavia, Wijnkoops Bay, Letti, Sangir, Amboina, Tana Merah, also Weber's material). — Barnard, Ann. South African Mus., vol. 21, pt. 1, 1925, p. 215 (Natal coast).

Uropterygius marmoratus Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 111 (Kailua).— Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 206 (Apia).— Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 250 (Fakarava and Makemo, P. aumotus). — Fowler, Copeia, No. 112, Nov. 20, 1922, p. 82 (Hawaii).— Herre, Philippine Journ. Sci., vol. 23, No. 2, Aug. 1923, p. 232 (Vitanbai).— Fowler, Bull. Bishop Mus., vol. 22, 1925, p. 5 (Guam), p. 31 (Samoa).— Fowler and Ball, Bull. Bishop Mus., No. 26, 1925, p. 7 (French Frigates Shoal).— Fowler, Bull. Bishop Mus., No. 38, 1927, p. 7 (Christmas and Baker Islands); Occ. Pap. Bishop Mus., vol. 10, 1928, p. 61 (Apia, Hawaii, Nukuhiva, Guam, French Frigates Shoal, Fiji, Fakarava, Samoa, Strong, Carolines, Ebon, Apia); vol. 11, No. 5, 1931, p. 318 (reference); Proc. U. S. Nat. Mus., vol. 81, art. 8, 1932, p. 3 (Tinafoou).

2730

Scuticaria marmorata Veale, Occas. Pap. Bishop Mus., vol. 4, pt. 1, 1906, p. 12 (Mulauhiva).

Ichthyophis pantherinus Lesson, Voy. Coquille, Poiss., vol. 2, pt. 1, 1830, p. 131, pl. 13. Dualan, Carolines. — Swainson, Nat. Hist. Animals, vol. 2, 1839, p. 336 (reference).

Sidera pantherina Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 30.

Sidera (Muraenophis) pantherina Guichenot, Mém. Soc. Sci. Cherbourg, ser. 2, vol. 2, 1866, p. 147 (Madagascar).

Gymnomuraena pantherina Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 26 (Samoa).

Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 113, pl. (31) 175, fig. 3 (Java, Amboina, Ceram).

Uropterygius pantherinus Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 248 (Tabarava, Paumotus).

Muraena micropterus Bleeker, Natuurk. Tijds. Nederl. Indie, vol. 3, 1852, p. (238) 298. Wahai, Ceram.

Uropterygius micropterus Bleeker, Nederl. Tijds. Dierk., vol. 1, 1863, p. 160.

Gymnomuraena micropterus Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 114, pl. (20) 184, fig. 2 (Flores, Buro, Morotai, Amboina, Ceram, Aru, Timor).

Gymnomuraena micoptera Kner, Reise Novara, Fische, 1865, p. 388 (Madras).

Gymnomuraena micropteryx Bleeker, Verslagen Kon. Akad. Wet. Amsterdam, ser. 2, vol. 2, 1868, p. 301 (Waigiu). — Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 27 (Hamusi).

Uropterygius xanthopterus Bleeker, Naturk. Tijds. Nederl. Indie, vol. 19, 1859, p. (332) 350. Patjitan, Java.

Gymnomuraena xanthopterus Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 115, pl. (20) 184, fig. 1 (Java; Amboina).

Gymnomuraena xanthoptera Kner, Reise Novara, Fische, 1865, p. 388 (no locality). — Regan, Ann. Durban Mus., vol. 2, 1917–20, p. 197 (Durban).

Uropterygius macrocephalus (not Bleeker) Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 206 (Apia). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1912, p. 32 (Apia).

Anarchias reticulatus Herre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 230, pl. 9, fig. 3. Sitanki.

2733

Depth 16 1/2 to 28; head 7 to 10 1/3, 3 2/5 to 4 1/4 to vent, width 3 to 3 4/5 in its length; combined head and trunk 1 to 1 2/5 in tail. Snout 6 1/2 to 6 3/4 in head; eye 10 to 11 1/2, 1 3/4 to 1 7/8 in snout, 1 1/4 to 1 3/4 in interorbital; mouth cleft extends 1 1/4 to 2 eye diameters behind eye, length 2 2/3 to 2 3/4 in head; teeth triserial, 2 inner series larger, wider spaced, fewer and depressible, in jaws, in young biserial; several large medial depressible premaxillary

teeth ; vomerine teeth in short single row, biserial anteriorly with age ; interorbital 7 1/4 to 8, little convex. Gill opening equals or little longer than eye.

Slight cutaneous fin only at end of tail.

Yellowish, grayish or gray brown, usually little paler below. Body most everywhere finely or coarsely marbled with darker.

Zanzibar, Natal, Madagascar, Aldabra, India, Andamans, East Indies, Philippines, China, Melanesia, Micronesia, Polynesia, Hawaii.

2735

10895. Little Santa Cruz Island, Zamboanga. May 26, 1908. Length 330 mm.

23 examples. Maricaban Island, Luzon, shore under stone. January 20, 1908. Length 60 to 195 mm.

23014 to 23018. Iloilo Point, Panay. February 4, 1908. Length 83 to 185 mm. V
6 examples.

23006,
23005, 23011. Pilas Island. September 12, 1909. Length 130 to 163 mm.

11608 to 11612. Sablayan, Mindanao. December 12, 1908. Length 135 to 238 mm.

20755. Sablayan, Mindanao. December 13, 1908. Length 215 mm.

18205 to 18207. Sabtan Island. November 8, 1908. Length 145 to 188 mm.

7473. Tataan, Simalue Island. February 20, 1908. Length 225 mm.

2736

22482, 22483. Tan Wan, Formosa.
January 27, 1910. Length 125 to 248 mm.

2737

Uropterygius polyspilus (Regan)

Gymnomuraena polyspila Regan, Ann. Mag. Nat. Hist., ser. 8, vol. 4, 1909, p. 438. Tahiti; Zanzibar. — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 425, fig. (type).

Uropterygius polyspilus Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 60 (Society Islands).

2738

Uropterygius supraforatus (Regan)

Gymnomuraena supraforata Regan, Ann. Mag. Nat. Hist., ser. 4, vol. 8, 1909, p. 439. Savay [Tahiti]. — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 426, fig. (head) (type).

Uropterygius supraforatus Herre, Philippine Journ. Sci., vol. 23, no. 2, Aug. 1923, p. 234, fig. 14 (teeth) (Cresta de Gallo near Sabuyan). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 61 (compiled).

2739

Uropterygius okinawae Jordan and Snyder

Uropterygius okinawae Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 886, fig. 22. Okinawa, Riu Kiu. — Franz, Abhandl. Kön. Bayer. Akad. Wiss., vol. 4, Suppl. Band 1, 1910, p. 16, pl. 3, fig. 4 (Tokunoura).

2740

Uropterygius tigrinus (Lesson)

Ichthyophis tigrinus Lesson, Mem. Soc. Hist. Nat. Paris, vol. 4, 1829, p. 399. Bora Bora, Society Islands; Voy. Coquille, Zool., vol. 2, pt. 1, 1830, p. 129, pl. 12 (type). — Swainson, Nat. Hist. Animals, vol. 2, 1839, p. 336 (reference). — Richardson, Voy. Erebus and Terror, Ichth., 1844-48, p. 96 (Dualan). — Schmeltz, Cat. Mus. Godeffroy, no. 2, 1868, p. 9 (Samoa).

Gymnomuraena tigrina Bleeker, Atlas Ichth. Ind. Néerl., vol. 4, 1864, p. 113, pl. (21) 165, fig. 3 (Java, Cocos, Amboina, Timor). — Kner, Reise Novara, Fische, 1865, p. 387 (Tahiti). — Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 27 (Samoa). — Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 133 (Mauritius, Zanzibar, East Indies, India). — Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference). — Peters, Monatsber. Akad. Wiss. Berlin, 1876, p. 446 (Mauritius).

— Day, Fishes of India, pt. 4, 1878, p. 674. — Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 60 (South Sea). — Smith and Swain, Proc. U. S. Nat. Mus., vol. , 1882, p. 121 (Johnston Island). — Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (South Sea). — Day, Fauna British India, Fishes, vol. 1, 1889, p. 84. — Günther, Journ. Mus. Godeffroy, vol. 9, pt. 17, 1910, p. 424 (Society Islands). — Weber and Beaufort, Fishes Indo Austral. Archipelago, vol. 3, 1916, p. 393 (Bleeker's example). — Barnard, Ann. South African Mus., vol. 21, pt. 1, 1925, p. 216 (Natal coast).

Muraenoblenna tigrina Kaup, Archiv Naturges., 1856, pt. 1, p. 66 (Amalan, Moluccas, Celebes).

Muraeno-blenna tigrina Kaup, Cat. Apodal Fish. Brit. Mus., 1856, p. 98 (compiled).

2742

Scuticaria tigrina Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 112, pl. 22 (Honolulu; Kailua). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 206 (Apia; Pago Pago). — Seale, Occas. Pap. Bishop Mus., vol. 4, pt. 1, 1906, p. 11 (Tahiti; Tutuila).

Uropterygius tigrinus Fowler, Bull. Bishop Mus., no. 38, 1927, p. 7 (Honolulu); Mem. Bishop Mus., vol. 10, 1928, p. 59, pl. 3 B (Honolulu; Tutuila, Tahiti; Johnston; Society Islands; Apiang); vol. 11, no. 5, 1931, p. 318 (reference).

Gymnomuraena xanthopleura Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 26 (Uea). — Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 40 (South Sea).

? Gymnomuraena breviceps Schmeltz, Cat. Mus. Godeffroy, no. 5, 1874, p. 38. Savaii. (Nomen nudum.)

2743

Uropterygius fijiensis Fowler and Bean

Uropterygius fijiensis Fowler and Bean, Proc. U.S.N. Natl. Mus., vol. 63, 1923, p. 9. Fiji. — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 60 (copied).

2744

Genus Channomuraena Richardson

Channo-muraena Richardson, Zool. Voy. Erebus and Terror, Ichth., 1844-48, p. 96. Type Ichtyophis vittatus Richardson, monotypic.

Snout very short, less than 1/4 of mouth cleft. Eye well advanced. Mouth cleft long, nearly 1/2 of head. Teeth rather small, pointed, partly equal, in several series. Hind nostril short round tube or simple pore. Vertical fins rudimentary, confined to end of tail. Tail very short, about 1/2 rest of body.

Species few, strikingly colored.

2745

Channomuraena

~~Uropterygius~~ bennettii (Günther)

Gymnomuraena bennettii Günther, Cat. Fishes Brit. Mus., vol. 8, 1870, p. 135. Mauritius.

Gymnomuraena bennetti Bleeker, Rech. Faune Madagascar, pt. 4, 1874, p. 73 (reference).